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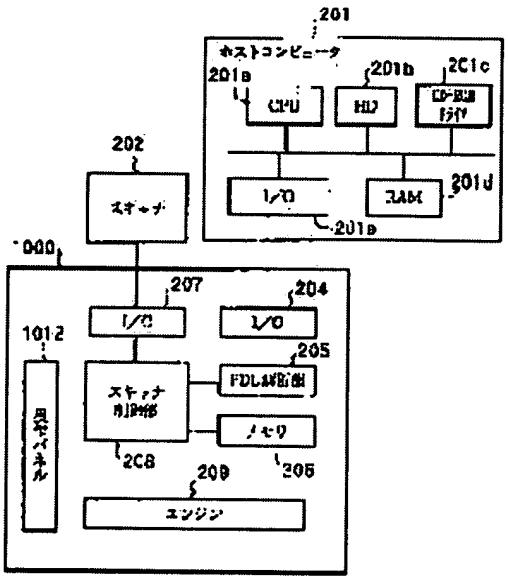
(54) PRINTER, INFORMATION PROCESSOR AND THEIR CONTROL METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To fetch the image data based on the instruction included in the print data and to output the image data after combing them with the print data.

SOLUTION: An instruction to combine the image that is read out of a scanner 202 is incorporated in the print data which are sent to a printer 1000 from a host device 201. Then the instruction is executed by the printer 1000 and the print data are combined with the scanner data. Meanwhile, the image read out of the scanner 202 is transferred to the device 201 which previews to display the received image. An operator selects an area that should be incorporated into an image formed from the print data on a review display screen.



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CLAIMS

[Claim(s)]
[Claim 1] The airline printer characterized by to have a detection means detect the instruction which directs composition with these print data and image data out of the print data transmitted from the external device, an incorporation means will incorporate image data if said instruction is detected by said detection means, and the image obtained based on said print data in the image data incorporated by said incorporation means and a synthetic means compound.
[Claim 2] Said instruction is an airline printer according to claim 1 characterized by including the instruction which directs the insertion field which inserts said read image data into a page.
[Claim 3] It is the airline printer according to claim 2 which is further equipped with a transmitting means transmit the image data incorporated by said incorporation means to said external device, and a receiving means receive the selection field information which shows the part which should compound in said image data from said external device, and is characterized by for said synthetic means to compound the image data contained to the selection field of said image data which said selection field information shows, and the image data of said insertion field.
[Claim 4] Furthermore, the airline printer according to claim 3 characterized by having a comparison means to compare said insertion field and said quota area size, and an information means to tell a user about this decision result when decision that magnitude changes with said comparison means is made.
[Claim 5] Furthermore, the airline printer according to claim 3 characterized by having a comparison means to compare said insertion field and said quota area size, and a means to stop actuation of the airline printer concerned when decision that magnitude changes with said comparison means is made further.
[Claim 6] Furthermore, the airline printer according to claim 3 by which it is characterized [equipped with the variable power means which expands or reduces the image data in said quota field, and is doubled with a comparison means to compare said insertion field and said quota area size at said insertion area size when decision that magnitude changes with said comparison means is made further].
[Claim 7] Furthermore, the airline printer according to claim 2 characterized by having a selection means to choose to which priority shall be given between the image data of this insertion field, and the image data of said selection field when data already exist in said insertion field.
[Claim 8] Furthermore, an airline printer given in either of claims 1-7 characterized by having a setting means to set up the resolution at the time of said incorporation means incorporating image data.
[Claim 9] Said image data is an airline printer according to claim 1 characterized by including the image data transmitted from a scanner.
[Claim 10] A data transmitting means to transmit print data including the instruction which directs the insertion field which is the information processor connected with the airline printer which can take in image data from a scanner, and inserts image data to said airline printer, A receiving means to receive the image data which said airline printer incorporated from the scanner according to said directions from this airline printer, A display means to display the image data received by said receiving means, The information processor characterized by including an image data directions means to direct the image

data inserted in said insertion field, and a transmitting means to transmit the result depended on said directions means to said airline printer, based on the image data displayed by said display means.
[Claim 11] The image data incorporated by said receiving means is an information processor according to claim 10 characterized by including the image data to which resolution was lowered by said airline printer.
[Claim 12] The image data incorporated by said receiving means is an information processor according to claim 10 characterized by being able to lower resolution and being received by the information processor concerned.
[Claim 13] Said display means is an information processor according to claim 10 characterized by transmitting to said airline printer as a field of the image data which displays the frame of the size equivalent to an insertion field, moves said frame according to directions by said directions means onto the image data which received, and inserts the location and size of said frame in said insertion field with said transmitting means.
[Claim 14] Connected with the airline printer which can take in image data from a scanner. A reading means to be the information processor which can create document data and to read image data from a scanner through said airline printer according to the information on the insertion field which was included in document data and which should insert image data, An image data directions means to direct the selection field which shows the field of the image data inserted in said document data based on the image data displayed by display means to display the read image data, and said display means, The information processor characterized by including a print-data creation means including the information on said insertion field and said selection field to create the print data which can be interpreted with said airline printer, and to transmit to an airline printer, based on said document data, said insertion field, and said selection field.
[Claim 15] The information processor according to claim 14 characterized by displaying the frame showing a selection field while reading image data with said reading means and displaying this image with said display means, when it has further a carbon button display means to display the carbon button it is directed that reads said image data from a scanner when [which outputs said document data] purport directions are carried out and said carbon button is operated.
[Claim 16] Said carbon button display means is an information processor according to claim 14 characterized by displaying the insertion field in said document data when the carbon button on which the insertion field in said document data which insert the read image data is displayed is displayed further and this carbon button is operated.
[Claim 17] The frame in which the selection field displayed by said display means is shown is an information processor according to claim 16 characterized by what is displayed in the size corresponding to said insertion field.
[Claim 18] The information processor according to claim 16 characterized by having further a means to change the location of said insertion field, size, or its both, by operating the frame in which the insertion field displayed by said display means is shown.
[Claim 19] The data transmitting process of transmitting print data including the instruction which directs the insertion field which is the information processing approach connected with the airline printer which can take in image data from a scanner, and inserts image data to said airline printer, The receiving process which receives the image data which said airline printer incorporated from the scanner according to said directions from this airline printer, The display process which displays the image data received according to said receiving process, The information processing approach characterized by including the image data directions process of directing the image data inserted in said insertion field, and the transmitting process which transmits the result depended on said directions process to said airline printer based on the image data displayed by said display process.
[Claim 20] The image data incorporated according to said receiving process is the information processing approach according to claim 19 characterized by including the image data to which resolution was lowered by said airline printer.
[Claim 21] The image data incorporated according to said receiving process is the information

processing approach according to claim 19 characterized by being able to lower resolution and being received by the information processing approach concerned.
[Claim 22] Said display process is the information-processing approach according to claim 19 characterized by to transmit to said airline printer as a field of the image data which displays the frame of the size equivalent to an insertion field, moves said frame according to directions by said directions process onto the image data which received, and inserts the location and size of said frame in said insertion field according to said transmitting process.
[Claim 23] Connected with the airline printer which can take in image data from a scanner. The reading process which is the information processing approach which can create document data, and reads image data from a scanner through said airline printer according to the information on the insertion field which was included in document data, and which should insert image data, The image data directions process of directing the selection field which shows the field of the image data inserted in said document data based on the image data displayed by the display process which displays the read image data, and said display process, The information processing approach characterized by including the print-data creation process including the information on said insertion field and said selection field which creates the print data which can be interpreted with said airline printer, and is transmitted to an airline printer based on said document data, said insertion field, and said selection field.
[Claim 24] The information-processing approach according to claim 23 characterized by to display the frame showing a selection field while reading image data according to said reading process and displaying this image according to said display process, when it has further the carbon button display process which displays the carbon button it is directed that reads said image data from a scanner when [which outputs said document data] purport directions are carried out and said carbon button is operated.
[Claim 25] Said carbon button display process is the information processing approach according to claim 23 characterized by displaying the insertion field in said document data when the carbon button on which the insertion field in said document data which insert the read image data is displayed is displayed further and this carbon button is operated.
[Claim 26] The frame in which the selection field displayed by said display process is shown is the information processing approach according to claim 25 characterized by what is displayed in the size corresponding to said insertion field.
[Claim 27] The information processing approach according to claim 25 characterized by having further the process which changes the location of said insertion field, size, or its both by operating the frame in which the insertion field displayed by said display process is shown.
[Claim 28] It is the computer-readable memory which memorizes the program which can be executed by computer. Said program The data transmitting process of transmitting print data including the instruction which directs the insertion field which inserts image data to an airline printer, The receiving process which receives the image data which said airline printer incorporated from the scanner according to said directions from this airline printer, The display process which displays the image data received according to said receiving process, Memory characterized by including the image data directions process of directing the image data inserted in said insertion field, and the transmitting process which transmits the result depended on said directions process to said airline printer based on the image data displayed by said display process.
[Claim 29] The image data incorporated according to said receiving process is memory according to claim 28 characterized by including the image data to which resolution was lowered by said airline printer.
[Claim 30] The image data incorporated according to said receiving process is memory according to claim 28 characterized by being able to lower resolution and being received by the information processing approach concerned.
[Claim 31] Said display process is memory according to claim 28 characterized by transmitting to said airline printer as a field of the image data which displays the frame of the size equivalent to an insertion field, moves said frame according to directions by said directions process onto the image data which

received, and inserts the location and size of said frame in said insertion field according to said transmitting process.

[Claim 32] It is the computer-readable memory which memorizes the program which can be executed by computer. Said program The reading process which reads image data from a scanner through an airline printer according to the information on the insertion field which should insert image data included in document data, The image data directions process of directing the selection field which shows the field of the image data inserted in said document data based on the image data displayed by the display process which displays the read image data, and said display process, Memory characterized by including the print-data creation process including the information on said insertion field and said selection field which creates the print data which can be interpreted with said airline printer, and is transmitted to an airline printer based on said document data, said insertion field, and said selection field.

[Claim 33] Said program is memory according to claim 32 characterized by to display the frame showing a selection field while reading image data according to said reading process and displaying this image according to said display process, when said carbon button is operated including further the carbon button display process which displays the carbon button it is directed that reads said image data from a scanner when [which outputs said document data] purport directions are carried out.

[Claim 34] Said carbon button display process is memory according to claim 32 characterized by displaying the insertion field in said document data when the carbon button on which the insertion field in said document data which insert the read image data is displayed is displayed further and this carbon button is operated.

[Claim 35] The frame in which the selection field displayed by said display process is shown is memory according to claim 34 characterized by what is displayed in the size corresponding to said insertion field.

[Claim 36] Memory according to claim 34 characterized by having further the process which changes the location of said insertion field, size, or its both by operating the frame in which the insertion field displayed by said display process is shown.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the information processors which control the airline printer and it which compound and print the image read from the scanner etc., and the image created based on print data, and those control approaches.
[0002]
[Description of the Prior Art] When printing conventionally the image containing the image data incorporated with the scanner, and the print data described by PDL (Page Description Language) transmitted from a host computer, image data once needed to be incorporated from the scanner to the host computer, the image data and PDL data needed to be compounded, and the printer needed to be made to transmit and print the data.
[0003]
[Problem(s) to be Solved by the Invention] However, if the size of the data read with a scanner is large when the scanner and the host computer are connected through the network, a high load will be covered over a network. Moreover, a lot of memory for storing image data was needed for the host computer, and there were problems, like data processing in a host computer takes time amount.
[0004] This invention is made in view of the above technical problem, incorporates image data according to the directions included in print data, and aims at offering the information processors which send print data, and those control approaches to the airline printer and this airline printer which compound and output the image data and print data.
[0005] Furthermore, it aims at offering the information processors which send print data, and those control approaches to the airline printer and this airline printer which can compound print data and the read image data by the method of desired composition by including the directions about a trim and the synthetic location of print data and the image data compounded in print data, and transmitting to an airline printer.
[0006]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention builds the instruction of the purport which compounds the image read from the scanner into the print data transmitted to a printer from host equipment, performs the instruction by the printer, and makes print data and scanner data compound. In that case, the image read from the scanner is transmitted to host equipment, and indicates by preview in host equipment. And an operator is made to choose the field which should be included in the image formed from print data on a preview display screen.
[0007] Moreover, other configurations for this invention to attain are as follows.
[0008] That is, it has a detection means to detect the instruction which directs composition with these print data and image data out of the print data transmitted from the external device, an incorporation means to incorporate image data if said instruction is detected by said detection means, and the image obtained based on said print data in the image data incorporated by said incorporation means and a synthetic means to compound.

[0009] Or a data transmitting means to transmit print data including the instruction which directs the insertion field which is the information processor connected with the airline printer which can take in image data from a scanner, and inserts image data to said airline printer, A receiving means to receive the image data which said airline printer incorporated from the scanner according to said directions from this airline printer, A display means to display the image data received by said receiving means, Based on the image data displayed by said display means, an image data directions means to direct the image data inserted in said insertion field, and a transmitting means to transmit the result depended on said directions means to said airline printer are included.
[0010] Or connected with the airline printer which can take in image data from a scanner. A reading means to be the information processor which can create document data and to read image data from a scanner through said airline printer according to the information on the insertion field which was included in document data and which should insert image data, An image data directions means to direct the selection field which shows the field of the image data inserted in said document data based on the image data displayed by display means to display the read image data, and said display means, Based on said document data, said insertion field, and said selection field, a print-data creation means including the information on said insertion field and said selection field to create the print data which can be interpreted with said airline printer, and to transmit to an airline printer is included.
[0011]
[Embodiment of the Invention] With reference to a drawing, the gestalt of suitable operation of this invention is explained to a detail below [the 1st operation gestalt].
[0012] Drawing 1 is the block diagram showing the example of the printing structure of a system concerning this invention. In the printer 1000 of drawing 1 , I/O204 receives the print data (henceforth, PDL data) described by the Page Description Language from a host computer 201. I/O207 receives the data (following and scan data or scanning image) from a scanner 202. The PDL analysis section 205 develops a bit map image data based on the PDL data which I/O204 received. Memory 206 saves the developed bit map image data. The scanner control section 208 receives data from a scanner 202 according to the request of the PDL analysis section 205, and writes data in memory 206. A control panel 1012 can perform a setup of various actuation which is in charge of printing. Those setup is also downloadable from a host computer 201. Printer engine 209 prints the created data.
[0013] Moreover, a host computer 201 performs the program loaded to RAM201d from the external storage which can remove media, such as (hard disk HD) 201b and CD-ROM drive201c. Thereby, a host computer performs the procedure which showed the whole itself and printing system with the flow chart controlled and mentioned later. I/O interface 201e is an interface for communicating with a printer 1000.
[0014] In addition, this operation gestalt explains taking the case of a laser beam printer as a printer 1000. First, the configuration of a suitable laser beam printer to apply this operation gestalt is explained with reference to drawing 2 .
[0015] Drawing 2 is the sectional view having shown the configuration of the laser beam printer (henceforth LBP) by which this operation gestalt was applied. This LBP can register registration, fixed form format (form data), etc. of a character pattern from the source of data (un-illustrating). In addition, the airline printer of other printing methods, such as not only LBP but an ink jet method, may be used for the airline printer with which this operation gestalt is applied.
[0016] In drawing 2 , the LBP body 1000 inputs and memorizes text (character code), form information, or macro instruction supplied from external devices, such as the host computer 201 connected to it. The character pattern which corresponds with it according to those information is created, and an image is formed in the record paper which is a record medium. A switch, an LED display, etc. for actuation are allotted to a control panel 1012, and the printer control unit 1001 analyzes the text supplied by control and the host of the LBP body 1000 whole. Text is changed into the corresponding video signal of a character pattern, and this printer control unit 1001 mainly outputs it to a laser driver 1002. A laser driver 1002 is a circuit for driving semiconductor laser 1003, and switches turning on and off of the laser beam 1004 discharged from semiconductor laser 1003 according to the inputted video signal. A laser

beam 1004 is a rotating polygon 1005, is shaken at a longitudinal direction and carries out actuation exposure of the electrostatic drum 1006 top. Thereby, the electrostatic latent image of a character pattern is formed on the electrostatic drum 1006. This latent image is developed by the development unit 1007 arranged in electrostatic drum 1006 perimeter, and is imprinted by the recording paper after that. A cut sheet is used for this recording paper, and the cut sheet recording paper is contained by the form cassette 1008 with which LBP1000 was equipped, is incorporated in equipment with the feed roller 1009 and the conveyance roller 1010, and the conveyance roller 1011, and is supplied to the electrostatic drum 1006.
[0017] Drawing 3 is an operations sequence flow chart in this operation gestalt, and is a flow chart which shows the operations sequence which compounds and prints scanning data and PDL data especially. Actuation of a printing system is explained referring to drawing 2 and drawing 3 .
[0018] If edit of a document etc. is completed with a host computer and printing of the drawn-up document is directed, in a host computer 201, the created document data will be first changed into the PDL data which can be interpreted by the printer 1000. Then, into the PDL data created at step S801, an instruction of whether there is any page to which directions of the nest of scanning data are carried out, and the incorporation demand of the scanning data beforehand defined if it judged and was is matched with the specified page, and is incorporated. At the end, the created PDL data are transmitted to a printer 1000. The printer which received this data operates in the procedure of drawing 3 . If a host computer 201 transmits printing data to a printer 1000, analysis of the printing data which I/O204 received (step S301) and were received in the PDL analysis section 205 etc. will be processed (step S302). The PDL analysis section 205 judges whether they are the directions with which printing data incorporate data from a scanner 202 (step S303). If the instruction for compounding scanning data to the page developed immediately before is detected in PDL data, it directs to read data in the appointed resolution (specified in PDL data), or the nearest resolution to the scanner control section 208. According to this, the scanner control section 208 develops the data which incorporated and (step S306) incorporated data in memory 206 from a scanner 202 through I/O207 (step S307).
[0019] When it is judged that there are no directions which incorporate data from a scanner 202 after step S307 or at step S303, the image data based on PDL data is developed in memory 206 (step S304). Under the present circumstances, the image generated from PDL data is piled up so that the image already developed by memory 206 may serve as a background.
[0020] If it judges whether the data for 1 page were assembled (step S305) and has not gathered in the phase which finished the above processing, processing is resumed from step S301, and if it has gathered, it will print (step S308).
[0021] In addition, in expansion of the scanner data in step S307, to scanner data, neither trim nor processings, such as a mask or variable power, are performed, but the read data are compounded by the image data developed from PDL data as it was.
[0022] As explained above, according to the PDL data sent from a host computer, the airline printer of this operation gestalt can read scanning data automatically, and can compound PDL data and scanning data within an airline printer. Therefore, the need of transmitting scanning data to a host computer from a scanner does not need to transmit scanning data to a printer from a host computer, either. For this reason, the communications traffic between a scanner 202 or a printer 1000 can be reduced. Thereby, in a Local Area Network etc., a host computer can prevent the contention at the time of using a network and a printer, especially when connecting with the printer through the communication network shared with other host computers or a peripheral device.
[0023] Moreover, since it is not necessary to compound an image with a host computer, a host computer can be used effectively.
[0024] Moreover, the instruction which compounds scanning data can direct composition of scanning data in a printer ********** sake to a desired page as some PDL instructions.
[0025] [the 2nd operation gestalt] -- the 1st operation gestalt showed the only compounded example to the data which developed the data incorporated from the scanner from PDL data. With this operation gestalt, the part incorporating scanning data is specified with PDL data.
[0026] Drawing 4 is drawing for explaining the difference between the 1st operation gestalt and the 2nd

operation gestalt. If data are compounded according to the 1st operation gestalt when compounding and printing the scanning data 400 and the PDL data 405, the image data to which the scanning data 400 were made into the background, and the PDL data 405 piled them up on it like complex data 410 will be created. Therefore, in the 1st operation gestalt, unnecessary data (drawing 4 parts other than field 401 in the scanning data 400) must not be in composition with PDL data in scanning data.
[0027] On the other hand, with this operation gestalt, the insertion field 406 which inserts the scanning data 405 in the image data developed from PDL data is specified with PDL data. In a printer, the selection field 401 which is a field of the scanning data corresponding to the insertion field 406 is developed by memory 206, the PDL data 405 are written in from on the, and complex data 412 is created.
[0028] Drawing 5 is the procedure by the printer for forming an image as mentioned above.
[0029] If a host computer 201 transmits printing data to a printer 1000, analysis of the printing data which I/O204 received (step S401) and were received in the PDL analysis section 205 etc. will be processed (step S402). The PDL analysis section 205 judges whether they are the directions with which printing data incorporate data from a scanner 202 (step S403). If the instruction for compounding scanning data to the page developed immediately before is detected in PDL data, it directs to read data in the appointed resolution (specified in PDL data), or the nearest resolution to the scanner control section 208. Moreover, the location (dx, dy) and size x*y for pinpointing the field of the scanning data compounded which are related with the instruction for [said] compounding and are contained in PDL data are directed to the scanner control section 208 (step S406). The scanner control section 208 incorporates the data of the field specified from the scanner 202 through I/O207 (step S407), and develops the incorporated data in memory 206 (step S408). Here, the field specified from the scanned data may be cut off and you may develop in memory, and only the specified field may be scanned as long as a scanner is possible structural.
[0030] Drawing 6 shows the example of the image with which the scanning data 501 and the PDL data 502 were compounded. The insertion field 503 is specified by the coordinate (dx, dy) of the upper left hand corner showing the location, and the die length x of the width showing the size and vertical die-length y in drawing 6 . From the scanning data 501, the selection field 504 corresponding to the insertion field 503 is cut off, and it is compounded by the PDL data 502.
[0031] When it is judged that there are no directions which incorporate data from a scanner 202 after step S408 or at step S403, the image data based on PDL data is developed in memory 206 (step S404). Under the present circumstances, the image generated from PDL data is piled up so that the scanning data already developed by memory 206 may serve as a background.
[0032] If it judges whether the data for 1 page were assembled (step S405) and has not gathered in the phase which finished the above processing, processing is resumed from step S301, and if it has gathered, it will print (step S409).
[0033] If this operation gestalt is used as explained above, the same effectiveness as the 1st operation gestalt will be acquired. Since an insertion field is correctly directed with PDL data in addition to it, even if the image unnecessary for merge is contained in scanning data, only required scanning data are compounded with PDL data.
[0034] [the 3rd operation gestalt] -- scanning data can transmit the scanning data which LBP1000 received to a host computer, and although transmitted to LBP1000, they can also constitute them from the 1st and 2nd operation gestalten so that the outline of scanning data can be previewed on a host computer. Furthermore, it can also be directed which scanning data are assigned based on the scanning data previewed on the host computer 201 for every insertion field which inserts the scanning data beforehand specified in PDL data.
[0035] Drawing 7 is the block diagram showing the example of the printing structure of a system to which this operation gestalt was applied. In addition, the same reference mark is given to the block which has the same function as the 1st and drawing 1 in the 2nd operation gestalt. I/O507 will send data to both the scanner control section 208 and the host computer 201, if data are received from a scanner 202. A host computer 201 thins out a dot from the received scanning data, and displays scanning data on

the screen of a host computer by the preview function. Or I/O507 thins out a dot from scanning data according to the display capabilities of a host computer, and may transmit to a host computer.
[0036] LBP [in / in drawing 8 / this operation gestalt]1000, and a host computer 201 -- it is the flow chart which shows each operations sequence. Step S600 - step S613 show the procedure in LBP1000, and step S650 - step S653 show the procedure in a host computer 201.
[0037] The operations sequence within LPB1000 is explained first. If LBP1000 receives the PDL data transmitted from the host computer 201 by I/O204 (step S600), PDL data will be processed in the PDL analysis section 205 (step S601), and PDL data will be developed on memory 206 (step S602).
[0038] Incorporation of the data of a scanner 202 is directed that the PDL analysis section 205 detects the instruction which directs composition with the data and the scanning data which were developed to the scanner control section 208 (YES of step S603). The scanner control section 208 to which incorporation was directed incorporates scanning data through I/O507 (step S610). Resolution when incorporating scanning data is made into the value already specified in the PDL analysis section 205, and when it cannot incorporate in the specified resolution, it is performed in the resolution nearest to the specified resolution. The scanning data incorporated by coincidence are transmitted also to a host computer 201 from I/O507 (step S611). If it is made to transmit at this time after lowering the resolution of scanning data according to the display resolution of a preview function, the amount of data of transmit data can be reduced. The arrow head of the dotted line which is going before step S611 to the step S650 in drawing 6 shows that the scanning data incorporated at step S610 are transmitted.
[0039] Then, the scanner control section 208 receives the information which shows the location of the selection field in scanning data to the insertion field assigned with PDL data from a host computer 201 (step S612). The contents of the selection field directed to the insertion field of the image based on the PDL data developed by memory 206 in scanning data at step S602 are written in, and composition of PDL data and scanning data is performed (step S613).
[0040] On the other hand, when [which was not] the directions which incorporate data from a scanner 202 are detected at step S603, it progresses to step S604.
[0041] It judges whether the data for 1 page were assembled, and at step S604, if it has not gathered, processing is resumed from step S600, and if it has gathered, it will print by progressing to step S605.
[0042] Next, the operations sequence in a host computer 201 is explained. A host computer 201 receives the scanning data which were transmitted by step S611 of LBP1000 and which were operated on a curtailed schedule (step S650), and carries out a screen display of the received data (step S651). The selection field of scanning data is directed by the operator on this display screen. According to these directions, the selection field of scanning data is assigned for every insertion field of PDL data (step S652). These results are notified to LBP1000 (step S653). The arrow head of the dotted line which is going before step S653 to the step S612 in drawing 6 shows that the result assigned at step S652 is transmitted to LBP1000.
[0043] In addition, since the insertion field of scanning data is beforehand specified in PDL data, at step S611, the identifier of an insertion field and each size may be transmitted to a host computer with scanning data.
[0044] Drawing 9 is the example of the preview screen in a host computer. The frame 610 equivalent to the size of the insertion field received from the printer is expressed as a host computer on the preview screen 607. And an operator operates the migration carbon button 611, moves this frame 610, and specifies the selection field compounded by PDL data.
[0045] Moreover, there may be two or more insertion fields specified in PDL data. In this case, at step S652, the identifier of an insertion field and the selection field of scanning data are matched and assigned, and that result is transmitted to a printer 1000.
[0046] If this operation gestalt is used as explained above, composition and printing of the scanning data which a user desires with a field and PDL data can be performed. Moreover, assignment of the field of scanning data is moving the frame of the size equivalent to the field specified by PDL data on a preview screen, and is ******. For this reason, assignment of a desired field can carry out very easily.
[0047] In addition, it can also constitute so that scanning data may be transmitted to a host computer

201, without lowering resolution, a host computer 201 may lower resolution at step S650 and scanning data may be received at step S611.
[0048] With the gestalt of [operation gestalt of ** 4th] the 2nd operation, the location of the insertion field specified by PDL and the location of the selection field of the scanner data compounded there corresponded. Moreover, with the gestalt of the 3rd operation, the size of the insertion field specified by PDL was equivalent to the size of the selection field of the scanner data compounded. An operator is made to also specify the location and size of an insertion field in PDL data with the gestalt of this operation in addition to the function which previews the data of a scanner 202 to a host computer 201. After these assignment ends, a host computer 201 creates PDL data and transmits them to a printer 1000. The system of this operation gestalt is the same as that of the configuration shown in drawing 7 .
[0049] This operation gestalt is explained referring to drawing 7 and drawing 10 - drawing 15 .
[0050] First, the processing on a host computer 201 is explained according to the flow chart of drawing 10 . A user draws up a document etc. using a predetermined application program. The user adds the size and the location of the instruction of a purport to insert scanning data in, and an insertion field to the page of a request of this document. It depends for this actuation on the application which draws up a document.
[0051] A printer driver will be started if a printing demand is advanced. The procedure of drawing 10 shows actuation of the printer driver after this. First, it judges whether a printer driver has a scanning merge instruction in the created document data (step S1001). When it is judged that there is nothing, selection of the carbon button of scanning relation, such as the scanning data insertion point carbon button 603 and the scanning data preview carbon button 604, of the screen (it is called a printer driver window) shown in drawing 11 is made impossible, and the printer driver window 602 is displayed on the monitor 601 of a host computer 201 (step S1002).
[0052] On the other hand, when the synthetic instruction of scanning data is detected, the printer driver window 602 is displayed, using the above-mentioned scanning relation carbon button as selectable (step S1003).
[0053] Then, it waits until an operator operates the carbon button of either of the displayed windows (step S1004). If one of carbon buttons is pushed, it will progress to step S1005 and will judge [which carbon button was pushed and].
[0054] When the scanning data preview carbon button 604 is pushed, it progresses to step S1006. First, to a scanner 202, loading of a manuscript image is required, and a scanner reads in response to it and receives the image data which transmitted (step S1006). A printer driver displays the image data which received as a preview window 607 of drawing 12 (step S1007). An operator looks at this screen and operates it using the frame migration carbon button 611 etc. According to this actuation, the selection frame 610 in which a selection field is shown is moved, and while recording that location, it displays (step S1008).
[0055] When the scanning data insertion point carbon button 603 is pushed, the insertion point window 606 is displayed (step S1009). In this window, a frame 609 is displayed based on the synthetic part of the scanning data set as document data [finishing / creation].
[0056] When the print preview carbon button 605 is pushed, a non-illustrated printing preview window is displayed (step S1011). However, nothing is displayed into an insertion field. And it judges whether the preview of scanning data was performed about the page currently displayed (step S1012). If carried out, from the image data which received from the scanner in step S1006, the interior of the selection frame set up at step S1008 will be started, and it will be compounded and displayed on an insertion field (step S1013).
[0057] Moreover, when a print button 605 is pushed, document data [finishing / creation], the location of an insertion field and size which are set up, and the location and size of a selection field corresponding to it are changed into PDL data at the time, and it transmits to a printer 1000 (step S1014).
[0058] Drawing 13 is the flow chart of actuation of the printer 1000 of which reading of image data was required by step S1006 of drawing 10 . First, a manuscript image is made to scan with a scanner 202

(step S1301). And the obtained image data is saved in memory 206 (step S1302), and it transmits to a host computer 201 in the resolution which had the image data specified (step S1304).
[0059] Drawing 14 shows actuation by the printer 1000 which received the PDL data transmitted after step S1014 of drawing 10 .
[0060] Reception of PDL data processes analyzing the data etc. (step S1402). (step S1401) And it judges whether the instruction which directs composition of scanner data is included in the PDL data (step S1403). When contained, the location (dx1, dy1) which shows the selection field of PDL data to scanning data, and size x*y are obtained (step S1407). And the scanning data equivalent to a location (dx1, dy1) and the selection field of size x*y are read (step S1408). Under the present circumstances, if scanning data are already read for the preview display, it will not scan anew. In this case, the selection field set up is started from the data saved at step S1302 of drawing 13 . If the preview is not performed, it will scan here and a manuscript image will be read.
[0061] The selection field of the read scanning data is developed in the location (dx2, dy2) of the set-up insertion field (step S1409).
[0062] When it is judged that there are no directions of composition of scanning data in step S1403, after step S1409, it develops in memory 206 based on PDL data at a dot image data (step S1405). At this time, a dot image data is developed so that the data which are already in memory 206 may be made into a background. Therefore, if scanning data are already stored in memory 206 at step S1409, it will be made into a background and an image will be compounded. In this way, if 1-page data are obtained (step S1406- YES), printing will be performed in step S1410.
[0063] Drawing 15 is drawing showing an example of the scanner data compounded in an above-mentioned procedure, and PDL data. In drawing 15 , the image in the selection field set up on the data 901 read with the scan is compounded by the insertion field of the PDL data 902.
[0064] A selection field can be freely set up into scanning data on the screen of a host computer as mentioned above. Since this setup can be performed looking at the preview of scanning data, the partial image which a user desires can be chosen correctly and the selected part can be compounded in images, such as a document expressed by PDL data. For this reason, it is not necessary to carry out location ****** of the selection field in the manuscript image scanned correctly beforehand to the insertion field of the scanning data in the printed matter which it is finally going to output. Moreover, since composition is performed in a printer, the processing load in a host computer is mitigable.
[0065] Furthermore, to perform the preview display of scanning data, it is necessary to transmit image data to a host computer from a scanner. In this case, the image data thinned out and carried out according to the display screen is enough as the image data transmitted. Moreover, it is not necessary to transmit scanning data to a printer from a host computer. For this reason, the image data sent out on a network is small data, and does not increase communicative traffic.
[0066] In addition, it is made to perform actuation of being as add **** [, and]. [moving the insertion frame 609 in which an insertion field is shown after step S1009 of drawing 10] [changing the size] In that case, the instruction according to these actuation is added also to the PDL data created at step S1014 with migration and an addition of an insertion frame. Moreover, when the size of the insertion frame 609 is changed, the size of the selection frame 610 is also changed according to it.
[0067] [the 5th operation gestalt] -- although it was determined with the 3rd and 4th operation gestalt whether have scanned at the time of the PDL data origination before the printer driver window 602 is started, it can make it possible to compound scanning data, after starting the printer driver window 602
[0068] According to the flow chart of drawing 16 , the configuration procedure of the selection field in this operation gestalt is explained, referring to drawing 17 . In addition, the structure of a system is the same as that of the gestalt of the 1st thru/or the 4th operation.
[0069] First, the processing on a host computer 201 is explained according to the flow chart of drawing 16 . The processing in a printer is the same as that of drawing 13 of the 4th operation gestalt, and drawing 14 . A user draws up a document etc. using a predetermined application program. The user adds the size and the location of the instruction of a purport to insert scanning data in, and an insertion field to the page of a request of this document. It depends for this actuation on the application which draws up a

document.
[0070] A printer driver will be started if a printing demand is advanced. The procedure of drawing 16 shows actuation of the printer driver after this. First, among the screens shown in drawing 17 , a printer driver changes the scanning data incorporation carbon button 10001 into a selectable condition, and displays the printer driver window 602 (step S1601).
[0071] Then, it waits until an operator operates the carbon button of either of the displayed screens (step S1602). If one of carbon buttons is pushed, it will progress to step S1603 and will judge [which carbon button was pushed and].
[0072] When the scanning data incorporation carbon button 604 is pushed, it progresses to step S1604. First, to a scanner 202, loading of a manuscript image is required, and a scanner reads in response to it and receives the image data which transmitted (step S1604). A printer driver displays the image data which received as a preview window 607 of drawing 17 (step S1605). An operator looks at this screen and operates it using the frame migration carbon button 611 etc. According to this actuation, the selection frame 610 in which a selection field is shown is moved, and while recording that location, it displays (step S1606).
[0073] When the scanning data insertion point carbon button 603 (hidden in drawing 17) is pushed, the insertion point window 606 is displayed (step S1607). In this screen, the insertion frame 609 is displayed based on the synthetic part of the scanning data set as document data [finishing / creation].
[0074] When the print preview carbon button 605 is pushed, a non-illustrated print preview screen is displayed (step S1609). However, nothing is displayed into an insertion field. And it judges whether the preview of scanning data was performed about the page currently displayed (step S1610). If carried out, from the image data which received from the scanner in step S1604, the interior of the selection frame set up at step S1606 will be started, and it will be compounded and displayed on an insertion field (step S1611).
[0075] Moreover, when a print button 605 is pushed, document data [finishing / creation], the location of an insertion field and size which are set up, and the location and size of a selection field corresponding to it are changed into PDL data at the time, and it transmits to a printer 1000 (step S1612).
[0076] In addition, when a scanning data incorporation carbon button is not pushed, PDL data are generated so that the field of the location corresponding to the insertion field of the scanning data defined in document data and size may be made into a selection field.
[0077] With the above procedure, the same operation effectiveness as the 4th operation gestalt can be acquired. Furthermore, even if an operator does not choose a selection field anew, the field on the scanning data corresponding to an insertion field is chosen as a selection field. For this reason, an operator can exclude the decision of the location of a selection field.
[0078] The field of the scanning data assigned with the insertion field in the [6th operation gestalt] and 3rd, and 4th operation gestalt When it is judged that a comparison means to compare magnitude with a (following and quota field) is established, and area size changes with comparison means, The warning message which tells that area size differs may be sent, processing may be stopped by error, or the function which can carry out enlarging or contracting of the quota field automatically, and can be doubled with an insertion field may be prepared. At this time, the change of whether warning and an error message are sent or to perform expansion/contraction automatically can be set up from a control panel 1012 or a host computer.
[0079] With the 3rd and 4th operation gestalten, the size of a selection field was determined according to the size of an insertion field, and an operator was not able to change it. However, with this operation gestalt, not only the location of a selection field but size can be changed in step S1008 of drawing 10 , and step S1606 of drawing 16 . The example in which size was automatically changed into drawing 18 is shown. In the case of drawing 18 , the selection field on scanning data is the image 1801 whole. On the other hand, the insertion field 1803 defined on the PDL data 1802 is a field smaller than it. In this case, it is reduced and an image 1801 is compounded by the insertion field 1803. Therefore, at step S1014 of drawing 10 , and step S1612 of drawing 16 , into PDL data, the image in the selection field of

scanning data is set by the size of an insertion field, and expansion / instruction made to reduce also incorporates it. A printer 1000 interprets this instruction, expands / reduces scanning data, and compounds them with PDL data.

[0080] Before printing if this operation gestalt is used as explained above, it can know that the fields of the scanning data which a user uses for composition, and PDL data differ by an error or the warning message, and suitable measures can be taken.

[0081] Since enlarging or contracting of scanning data can be carried out automatically and the image in a selection field can also be set by the size of an insertion field, scanning data are expanded beforehand or it becomes unnecessary moreover, to reduce.

[0082] In [various modification] above-mentioned each operation gestalt, although the resolution of a scanner was beforehand set up by PDL1000, the scanner control section 208 asks a control panel 1012 the resolution of a printer, and it can incorporate data from a scanner 202 in the resolution inputted as a result. When it cannot carry out in the obtained resolution, it is the resolution nearest to it and data are incorporated from a scanner 202.

[0083] Moreover, with each above-mentioned operation gestalt, although the insertion field was beforehand specified in PDL data, also when a certain data already exist in the specified PDL data, it thinks. When such, you may enable it to specify either with a control panel 1012 or a host computer 201 from two methods of whether priority is given to PDL data, or priority is given to scanning data.

[0084] Drawing 19 is drawing which illustrated the data compounded according to this operation gestalt. The case where selection field 1901a in the scanner data 1901 is compounded with insertion field 1902a in the PDL data 1902 is considered. In this case, in order to develop scanning data priority, i.e., PDL data, as a dot image data previously and to pile up scanning data on it, it becomes like an image 1903. If it says by drawing 14 in order to carry out like this, not to develop the PDL data of step S1405 after step S1409, but what is necessary is just made to carry out between step S1402 and step S1403.

[0085] Moreover, since it is thought that priority is given to PDL data, the gestalt of the above 3rd and the 4th implementation should just develop PDL data after expansion of scanning data like drawing 14 , when it gives priority to PDL data.

[0086] Moreover, in order to change these, to process as drawing 14 , if the value of the flag is 1, and if it is 0, not to develop the PDL data of step S1405 after step S1409, but what is necessary is made to form the flag which changes a value according to actuation of an operator or the directions from a host computer, and just to carry out between step S1402 and step S1403.

[0087] Furthermore, priority cannot be given to either and the overlapping image can also be put in order in piles. Drawing 20 is drawing showing the example which compounds the PDL data 700 and the scanning data 705. If priority is given to scanning data, a certain image will already be outputted to the insertion field 701 of PDL data like an image 720. If priority is given to PDL data, the image in the selection field 706 of scanning data will be outputted like an image 710. If composition is chosen, both images will be set [they pile them up and] and outputted like an image 730. A user can also be made to specify the operation for piling up two images by the approach of this last. For example, the value of each corresponding pixel can be added, or if it is a binary image, an OR, an exclusive OR, etc. can be chosen. Even when PDL data are already in the field of the PDL data which insert scanning data by doing in this way, it can adjust on an airline printer.

[0088] Moreover, with an above-mentioned operation gestalt, although composition with scanning data and PDL data has been explained, even if the data compounded are image data other than scanning data, this operation gestalt is applicable.

[0089] Moreover, all the operation gestalten mentioned above were the systems by which the printer and the scanner became independent. However, the technique of image composition explained in each above-mentioned example is applicable to the system which connected with the host computer the digital compound machine which can be used as a copying machine, facsimile or a scanner, and a printer simple substance including a scanner and a printer.

[0090]

[Other operation gestalten] In addition, even if it applies this invention to the system which consists of

two or more devices (for example, a host computer, an interface device, a reader, a printer, etc.), it may be applied to the equipments (for example, a copying machine, facsimile apparatus, etc.) which consist of one device.

[0091] Moreover, the purpose of this invention supplies the storage which recorded the program code of the software which realizes the function of the operation gestalt mentioned above to a system or equipment, and is attained also by carrying out read-out activation of the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage.

[0092] In this case, the function of the operation gestalt which the program code itself read from the storage mentioned above will be realized, and the storage which memorized that program code will constitute this invention.

[0093] As a storage for supplying a program code, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, the memory card of a non-volatile, ROM, etc. can be used, for example.

[0094] Moreover, by performing the program code which the computer read, a part or all of processing that OS (operating system) which the function of the operation gestalt mentioned above is not only realized, but is working on a computer based on directions of the program code is actual is performed, and also when the function of the operation gestalt mentioned above by the processing is realized, it is contained.

[0095] Furthermore, after the program code read from the storage is written in the memory with which the functional expansion unit connected to the functional add-in board inserted in the computer or the computer is equipped, a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped is actual performs, and also when the function of the operation gestalt mentioned above by the processing is realized, it is contained based on directions of the program code.

[0096]

[Effect of the Invention] As explained above, according to this invention, according to PDL data, scanning data can be read automatically and PDL data and scanning data can be compounded within an airline printer. Therefore, the need of transmitting scanning data to a host computer from a scanner does not need to transmit scanning data to a printer from a host computer, either. For this reason, the communications traffic of network top ** can be reduced.

[0097] Moreover, since it is not necessary to compound an image with a host computer, a host computer can be used effectively.

[0098] Moreover, the instruction which compounds scanning data can direct composition of scanning data in a printer ********** sake to a desired page as some PDL instructions.

[0099] Moreover, since an insertion field is correctly directed with PDL data, even if the image unnecessary for merge is contained in scanning data, only required scanning data are compounded with PDL data.

[0100] Moreover, composition and printing of the scanning data which a user desires with a field and PDL data can be performed. Moreover, assignment of the field of scanning data is moving the frame of the size equivalent to the field specified by PDL data on a preview screen, and is ******. For this reason, assignment of a desired field can carry out very easily.

[0101] Moreover, a selection field can be freely set up into scanning data on the screen of a host computer. Since this setup can be performed looking at the preview of scanning data, the partial image which a user desires can be chosen correctly and the selected part can be compounded in images, such as a document expressed by PDL data.

[0102] Moreover, since it is not necessary to transmit scanning data to a printer from a host computer even if it is the case where scanning data are previewed, the image data sent out on a network is small data, and does not increase communicative traffic.

[0103] Furthermore, even if an operator does not choose a selection field anew, the field on the scanning data corresponding to an insertion field is chosen as a selection field. For this reason, an operator can exclude the decision of the location of a selection field.

[0104] Moreover, before printing, it can know that the fields of the scanning data which a user uses for composition, and PDL data differ by an error or the warning message, and suitable measures can be taken.
[0105] Since enlarging or contracting of scanning data can be carried out automatically and the image in a selection field can also be set by the size of an insertion field, scanning data are expanded beforehand or it becomes unnecessary moreover, to reduce.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention] This invention relates to the information processors which control the airline printer and it which compound and print the image read from the scanner etc., and the image created based on print data, and those control approaches.
[0002]

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PRIOR ART

[Description of the Prior Art] When printing conventionally the image containing the image data incorporated with the scanner, and the print data described by PDL (Page Description Language) transmitted from a host computer, image data once needed to be incorporated from the scanner to the host computer, the image data and PDL data needed to be compounded, and the printer needed to be made to transmit and print the data.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, according to this invention, according to PDL data, scanning data can be read automatically and PDL data and scanning data can be compounded within an airline printer. Therefore, the need of transmitting scanning data to a host computer from a scanner does not need to transmit scanning data to a printer from a host computer, either. For this reason, the communications traffic of network top ** can be reduced.
[0097] Moreover, since it is not necessary to compound an image with a host computer, a host computer can be used effectively.
[0098] Moreover, the instruction which compounds scanning data can direct composition of scanning data in a printer ********** sake to a desired page as some PDL instructions.
[0099] Moreover, since an insertion field is correctly directed with PDL data, even if the image unnecessary for merge is contained in scanning data, only required scanning data are compounded with PDL data.
[0100] Moreover, composition and printing of the scanning data which a user desires with a field and PDL data can be performed. Moreover, assignment of the field of scanning data is moving the frame of the size equivalent to the field specified by PDL data on a preview screen, and is ******. For this reason, assignment of a desired field can carry out very easily.
[0101] Moreover, a selection field can be freely set up into scanning data on the screen of a host computer. Since this setup can be performed looking at the preview of scanning data, the partial image which a user desires can be chosen correctly and the selected part can be compounded in images, such as a document expressed by PDL data.
[0102] Moreover, since it is not necessary to transmit scanning data to a printer from a host computer even if it is the case where scanning data are previewed, the image data sent out on a network is small data, and does not increase communicative traffic.
[0103] Furthermore, even if an operator does not choose a selection field anew, the field on the scanning data corresponding to an insertion field is chosen as a selection field. For this reason, an operator can exclude the decision of the location of a selection field.
[0104] Moreover, before printing, it can know that the fields of the scanning data which a user uses for composition, and PDL data differ by an error or the warning message, and suitable measures can be taken.
[0105] Since enlarging or contracting of scanning data can be carried out automatically and the image in a selection field can also be set by the size of an insertion field, scanning data are expanded beforehand or it becomes unnecessary moreover, to reduce.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, if the size of the data read with a scanner is large when the scanner and the host computer are connected through the network, a high load will be covered over a network. Moreover, a lot of memory for storing image data was needed for the host computer, and there were problems, like data processing in a host computer takes time amount.
[0004] This invention is made in view of the above technical problem, incorporates image data according to the directions included in print data, and aims at offering the information processors which send print data, and those control approaches to the airline printer and this airline printer which compound and output the image data and print data.
[0005] Furthermore, it aims at offering the information processors which send print data, and those control approaches to the airline printer and this airline printer which can compound print data and the read image data by the method of desired composition by including the directions about a trim and the synthetic location of print data and the image data compounded in print data, and transmitting to an airline printer.

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MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention builds the instruction of the purport which compounds the image read from the scanner into the print data transmitted to a printer from host equipment, performs the instruction by the printer, and makes print data and scanner data compound. In that case, the image read from the scanner is transmitted to host equipment, and indicates by preview in host equipment. And an operator is made to choose the field which should be included in the image formed from print data on a preview display screen.
[0007] Moreover, other configurations for this invention to attain are as follows.
[0008] That is, it has a detection means to detect the instruction which directs composition with these print data and image data out of the print data transmitted from the external device, an incorporation means to incorporate image data if said instruction is detected by said detection means, and the image obtained based on said print data in the image data incorporated by said incorporation means and a synthetic means to compound.
[0009] Or a data transmitting means to transmit print data including the instruction which directs the insertion field which is the information processor connected with the airline printer which can take in image data from a scanner, and inserts image data to said airline printer, A receiving means to receive the image data which said airline printer incorporated from the scanner according to said directions from this airline printer, A display means to display the image data received by said receiving means, Based on the image data displayed by said display means, an image data directions means to direct the image data inserted in said insertion field, and a transmitting means to transmit the result depended on said directions means to said airline printer are included.
[0010] Or connected with the airline printer which can take in image data from a scanner. A reading means to be the information processor which can create document data and to read image data from a scanner through said airline printer according to the information on the insertion field which was included in document data and which should insert image data, An image data directions means to direct the selection field which shows the field of the image data inserted in said document data based on the image data displayed by display means to display the read image data, and said display means, Based on said document data, said insertion field, and said selection field, a print-data creation means including the information on said insertion field and said selection field to create the print data which can be interpreted with said airline printer, and to transmit to an airline printer is included.
[0011]
[Embodiment of the Invention] With reference to a drawing, the gestalt of suitable operation of this invention is explained to a detail below [the 1st operation gestalt].
[0012] Drawing 1 is the block diagram showing the example of the printing structure of a system concerning this invention. In the printer 1000 of drawing 1 , I/O204 receives the print data (henceforth, PDL data) described by the Page Description Language from a host computer 201. I/O207 receives the data (following and scan data or scanning image) from a scanner 202. The PDL analysis section 205 develops a bit map image data based on the PDL data which I/O204 received. Memory 206 saves the developed bit map image data. The scanner control section 208 receives data from a scanner 202

according to the request of the PDL analysis section 205, and writes data in memory 206. A control panel 1012 can perform a setup of various actuation which is in charge of printing. Those setup is also downloadable from a host computer 201. Printer engine 209 prints the created data.
[0013] Moreover, a host computer 201 performs the program loaded to RAM201d from the external storage which can remove media, such as (hard disk HD) 201b and CD-ROM drive201c. Thereby, a host computer performs the procedure which showed the whole itself and printing system with the flow chart controlled and mentioned later. I/O interface 201e is an interface for communicating with a printer 1000.
[0014] In addition, this operation gestalt explains taking the case of a laser beam printer as a printer 1000. First, the configuration of a suitable laser beam printer to apply this operation gestalt is explained with reference to drawing 2 .
[0015] Drawing 2 is the sectional view having shown the configuration of the laser beam printer (henceforth LBP) by which this operation gestalt was applied. This LBP can register registration, fixed form format (form data), etc. of a character pattern from the source of data (un-illustrating). In addition, the airline printer of other printing methods, such as not only LBP but an ink jet method, may be used for the airline printer with which this operation gestalt is applied.
[0016] In drawing 2 , the LBP body 1000 inputs and memorizes text (character code), form information, or macro instruction supplied from external devices, such as the host computer 201 connected to it. The character pattern which corresponds with it according to those information is created, and an image is formed in the record paper which is a record medium. A switch, an LED display, etc. for actuation are allotted to a control panel 1012, and the printer control unit 1001 analyzes the text supplied by control and the host of the LBP body 1000 whole. Text is changed into the corresponding video signal of a character pattern, and this printer control unit 1001 mainly outputs it to a laser driver 1002. A laser driver 1002 is a circuit for driving semiconductor laser 1003, and switches turning on and off of the laser beam 1004 discharged from semiconductor laser 1003 according to the inputted video signal. A laser beam 1004 is a rotating polygon 1005, is shaken at a longitudinal direction and carries out actuation exposure of the electrostatic drum 1006 top. Thereby, the electrostatic latent image of a character pattern is formed on the electrostatic drum 1006. This latent image is developed by the development unit 1007 arranged in electrostatic drum 1006 perimeter, and is imprinted by the recording paper after that. A cut sheet is used for this recording paper, and the cut sheet recording paper is contained by the form cassette 1008 with which LBP1000 was equipped, is incorporated in equipment with the feed roller 1009 and the conveyance roller 1010, and the conveyance roller 1011, and is supplied to the electrostatic drum 1006.
[0017] Drawing 3 is an operations sequence flow chart in this operation gestalt, and is a flow chart which shows the operations sequence which compounds and prints scanning data and PDL data especially. Actuation of a printing system is explained referring to drawing 2 and drawing 3 .
[0018] If edit of a document etc. is completed with a host computer and printing of the drawn-up document is directed, in a host computer 201, the created document data will be first changed into the PDL data which can be interpreted by the printer 1000. Then, into the PDL data created at step S801, an instruction of whether there is any page to which directions of the nest of scanning data are carried out, and the incorporation demand of the scanning data beforehand defined if it judged and was is matched with the specified page, and is incorporated. At the end, the created PDL data are transmitted to a printer 1000. The printer which received this data operates in the procedure of drawing 3 . If a host computer 201 transmits printing data to a printer 1000, analysis of the printing data which I/O204 received (step S301) and were received in the PDL analysis section 205 etc. will be processed (step S302). The PDL analysis section 205 judges whether they are the directions with which printing data incorporate data from a scanner 202 (step S303). If the instruction for compounding scanning data to the page developed immediately before is detected in PDL data, it directs to read data in the appointed resolution (specified in PDL data), or the nearest resolution to the scanner control section 208. According to this, the scanner control section 208 develops the data which incorporated and (step S306) incorporated data in memory 206 from a scanner 202 through I/O207 (step S307).
[0019] When it is judged that there are no directions which incorporate data from a scanner 202 after

step S307 or at step S303, the image data based on PDL data is developed in memory 206 (step S304). Under the present circumstances, the image generated from PDL data is piled up so that the image already developed by memory 206 may serve as a background.

[0020] If it judges whether the data for 1 page were assembled (step S305) and has not gathered in the phase which finished the above processing, processing is resumed from step S301, and if it has gathered, it will print (step S308).

[0021] In addition, in expansion of the scanner data in step S307, to scanner data, neither trim nor processings, such as a mask or variable power, are performed, but the read data are compounded by the image data developed from PDL data as it was.

[0022] As explained above, according to the PDL data sent from a host computer, the airline printer of this operation gestalt can read scanning data automatically, and can compound PDL data and scanning data within an airline printer. Therefore, the need of transmitting scanning data to a host computer from a scanner does not need to transmit scanning data to a printer from a host computer, either. For this reason, the communications traffic between a scanner 202 or a printer 1000 can be reduced. Thereby, in a Local Area Network etc., a host computer can prevent the contention at the time of using a network and a printer, especially when connecting with the printer through the communication network shared with other host computers or a peripheral device.

[0023] Moreover, since it is not necessary to compound an image with a host computer, a host computer can be used effectively.

[0024] Moreover, the instruction which compounds scanning data can direct composition of scanning data in a printer ********** sake to a desired page as some PDL instructions.

[0025] [the 2nd operation gestalt] -- the 1st operation gestalt showed the only compounded example to the data which developed the data incorporated from the scanner from PDL data. With this operation gestalt, the part incorporating scanning data is specified with PDL data.

[0026] Drawing 4 is drawing for explaining the difference between the 1st operation gestalt and the 2nd operation gestalt. If data are compounded according to the 1st operation gestalt when compounding and printing the scanning data 400 and the PDL data 405, the image data to which the scanning data 400 were made into the background, and the PDL data 405 piled them up on it like complex data 410 will be created. Therefore, in the 1st operation gestalt, unnecessary data (drawing 4 parts other than field 401 in the scanning data 400) must not be in composition with PDL data in scanning data.

[0027] On the other hand, with this operation gestalt, the insertion field 406 which inserts the scanning data 405 in the image data developed from PDL data is specified with PDL data. In a printer, the selection field 401 which is a field of the scanning data corresponding to the insertion field 406 is developed by memory 206, the PDL data 405 are written in from on the, and complex data 412 is created.

[0028] Drawing 5 is the procedure by the printer for forming an image as mentioned above.

[0029] If a host computer 201 transmits printing data to a printer 1000, analysis of the printing data which I/O204 received (step S401) and were received in the PDL analysis section 205 etc. will be processed (step S402). The PDL analysis section 205 judges whether they are the directions with which printing data incorporate data from a scanner 202 (step S403). If the instruction for compounding scanning data to the page developed immediately before is detected in PDL data, it directs to read data in the appointed resolution (specified in PDL data), or the nearest resolution to the scanner control section 208. Moreover, the location (dx, dy) and size x*y for pinpointing the field of the scanning data compounded which are related with the instruction for [said] compounding and are contained in PDL data are directed to the scanner control section 208 (step S406). The scanner control section 208 incorporates the data of the field specified from the scanner 202 through I/O207 (step S407), and develops the incorporated data in memory 206 (step S408). Here, the field specified from the scanned data may be cut off and you may develop in memory, and only the specified field may be scanned as long as a scanner is possible structural.

[0030] Drawing 6 shows the example of the image with which the scanning data 501 and the PDL data 502 were compounded. The insertion field 503 is specified by the coordinate (dx, dy) of the upper left

hand corner showing the location, and the die length x of the width showing the size and vertical die-length y in drawing 6 . From the scanning data 501, the selection field 504 corresponding to the insertion field 503 is cut off, and it is compounded by the PDL data 502.
[0031] When it is judged that there are no directions which incorporate data from a scanner 202 after step S408 or at step S403, the image data based on PDL data is developed in memory 206 (step S404). Under the present circumstances, the image generated from PDL data is piled up so that the scanning data already developed by memory 206 may serve as a background.
[0032] If it judges whether the data for 1 page were assembled (step S405) and has not gathered in the phase which finished the above processing, processing is resumed from step S301, and if it has gathered, it will print (step S409).
[0033] If this operation gestalt is used as explained above, the same effectiveness as the 1st operation gestalt will be acquired. Since an insertion field is correctly directed with PDL data in addition to it, even if the image unnecessary for merge is contained in scanning data, only required scanning data are compounded with PDL data.
[0034] [the 3rd operation gestalt] -- scanning data can transmit the scanning data which LBP1000 received to a host computer, and although transmitted to LBP1000, they can also constitute them from the 1st and 2nd operation gestalten so that the outline of scanning data can be previewed on a host computer. Furthermore, it can also be directed which scanning data are assigned based on the scanning data previewed on the host computer 201 for every insertion field which inserts the scanning data beforehand specified in PDL data.
[0035] Drawing 7 is the block diagram showing the example of the printing structure of a system to which this operation gestalt was applied. In addition, the same reference mark is given to the block which has the same function as the 1st and drawing 1 in the 2nd operation gestalt. I/O507 will send data to both the scanner control section 208 and the host computer 201, if data are received from a scanner 202. A host computer 201 thins out a dot from the received scanning data, and displays scanning data on the screen of a host computer by the preview function. Or I/O507 thins out a dot from scanning data according to the display capabilities of a host computer, and may transmit to a host computer.
[0036] LBP [in / in drawing 8 / this operation gestalt]1000, and a host computer 201 -- it is the flow chart which shows each operations sequence. Step S600 - step S613 show the procedure in LBP1000, and step S650 - step S653 show the procedure in a host computer 201.
[0037] The operations sequence within LPB1000 is explained first. If LBP1000 receives the PDL data transmitted from the host computer 201 by I/O204 (step S600), PDL data will be processed in the PDL analysis section 205 (step S601), and PDL data will be developed on memory 206 (step S602).
[0038] Incorporation of the data of a scanner 202 is directed that the PDL analysis section 205 detects the instruction which directs composition with the data and the scanning data which were developed to the scanner control section 208 (YES of step S603). The scanner control section 208 to which incorporation was directed incorporates scanning data through I/O507 (step S610). Resolution when incorporating scanning data is made into the value already specified in the PDL analysis section 205, and when it cannot incorporate in the specified resolution, it is performed in the resolution nearest to the specified resolution. The scanning data incorporated by coincidence are transmitted also to a host computer 201 from I/O507 (step S611). If it is made to transmit at this time after lowering the resolution of scanning data according to the display resolution of a preview function, the amount of data of transmit data can be reduced. The arrow head of the dotted line which is going before step S611 to the step S650 in drawing 6 shows that the scanning data incorporated at step S610 are transmitted.
[0039] Then, the scanner control section 208 receives the information which shows the location of the selection field in scanning data to the insertion field assigned with PDL data from a host computer 201 (step S612). The contents of the selection field directed to the insertion field of the image based on the PDL data developed by memory 206 in scanning data at step S602 are written in, and composition of PDL data and scanning data is performed (step S613).
[0040] On the other hand, when [which was not] the directions which incorporate data from a scanner 202 are detected at step S603, it progresses to step S604.

[0041] It judges whether the data for 1 page were assembled, and at step S604, if it has not gathered, processing is resumed from step S600, and if it has gathered, it will print by progressing to step S605.
[0042] Next, the operations sequence in a host computer 201 is explained. A host computer 201 receives the scanning data which were transmitted by step S611 of LBP1000 and which were operated on a curtailed schedule (step S650), and carries out a screen display of the received data (step S651). The selection field of scanning data is directed by the operator on this display screen. According to these directions, the selection field of scanning data is assigned for every insertion field of PDL data (step S652). These results are notified to LBP1000 (step S653). The arrow head of the dotted line which is going before step S653 to the step S612 in drawing 6 shows that the result assigned at step S652 is transmitted to LBP1000.
[0043] In addition, since the insertion field of scanning data is beforehand specified in PDL data, at step S611, the identifier of an insertion field and each size may be transmitted to a host computer with scanning data.
[0044] Drawing 9 is the example of the preview screen in a host computer. The frame 610 equivalent to the size of the insertion field received from the printer is expressed as a host computer on the preview screen 607. And an operator operates the migration carbon button 611, moves this frame 610, and specifies the selection field compounded by PDL data.
[0045] Moreover, there may be two or more insertion fields specified in PDL data. In this case, at step S652, the identifier of an insertion field and the selection field of scanning data are matched and assigned, and that result is transmitted to a printer 1000.
[0046] If this operation gestalt is used as explained above, composition and printing of the scanning data which a user desires with a field and PDL data can be performed. Moreover, assignment of the field of scanning data is moving the frame of the size equivalent to the field specified by PDL data on a preview screen, and is ******. For this reason, assignment of a desired field can carry out very easily.
[0047] In addition, it can also constitute so that scanning data may be transmitted to a host computer 201, without lowering resolution, a host computer 201 may lower resolution at step S650 and scanning data may be received at step S611.
[0048] With the gestalt of [operation gestalt of ** 4th] the 2nd operation, the location of the insertion field specified by PDL and the location of the selection field of the scanner data compounded there corresponded. Moreover, with the gestalt of the 3rd operation, the size of the insertion field specified by PDL was equivalent to the size of the selection field of the scanner data compounded. An operator is made to also specify the location and size of an insertion field in PDL data with the gestalt of this operation in addition to the function which previews the data of a scanner 202 to a host computer 201. After these assignment ends, a host computer 201 creates PDL data and transmits them to a printer 1000. The system of this operation gestalt is the same as that of the configuration shown in drawing 7 .
[0049] This operation gestalt is explained referring to drawing 7 and drawing 10 - drawing 15 .
[0050] First, the processing on a host computer 201 is explained according to the flow chart of drawing 10 . A user draws up a document etc. using a predetermined application program. The user adds the size and the location of the instruction of a purport to insert scanning data in, and an insertion field to the page of a request of this document. It depends for this actuation on the application which draws up a document.
[0051] A printer driver will be started if a printing demand is advanced. The procedure of drawing 10 shows actuation of the printer driver after this. First, it judges whether a printer driver has a scanning merge instruction in the created document data (step S1001). When it is judged that there is nothing, selection of the carbon button of scanning relation, such as the scanning data insertion point carbon button 603 and the scanning data preview carbon button 604, of the screen (it is called a printer driver window) shown in drawing 11 is made impossible, and the printer driver window 602 is displayed on the monitor 601 of a host computer 201 (step S1002).
[0052] On the other hand, when the synthetic instruction of scanning data is detected, the printer driver window 602 is displayed, using the above-mentioned scanning relation carbon button as selectable (step S1003).

[0053] Then, it waits until an operator operates the carbon button of either of the displayed windows (step S1004). If one of carbon buttons is pushed, it will progress to step S1005 and will judge [which carbon button was pushed and].
[0054] When the scanning data preview carbon button 604 is pushed, it progresses to step S1006. First, to a scanner 202, loading of a manuscript image is required, and a scanner reads in response to it and receives the image data which transmitted (step S1006). A printer driver displays the image data which received as a preview window 607 of drawing 12 (step S1007). An operator looks at this screen and operates it using the frame migration carbon button 611 etc. According to this actuation, the selection frame 610 in which a selection field is shown is moved, and while recording that location, it displays (step S1008).
[0055] When the scanning data insertion point carbon button 603 is pushed, the insertion point window 606 is displayed (step S1009). In this window, a frame 609 is displayed based on the synthetic part of the scanning data set as document data [finishing / creation].
[0056] When the print preview carbon button 605 is pushed, a non-illustrated printing preview window is displayed (step S1011). However, nothing is displayed into an insertion field. And it judges whether the preview of scanning data was performed about the page currently displayed (step S1012). If carried out, from the image data which received from the scanner in step S1006, the interior of the selection frame set up at step S1008 will be started, and it will be compounded and displayed on an insertion field (step S1013).
[0057] Moreover, when a print button 605 is pushed, document data [finishing / creation], the location of an insertion field and size which are set up, and the location and size of a selection field corresponding to it are changed into PDL data at the time, and it transmits to a printer 1000 (step S1014).
[0058] Drawing 13 is the flow chart of actuation of the printer 1000 of which reading of image data was required by step S1006 of drawing 10 . First, a manuscript image is made to scan with a scanner 202 (step S1301). And the obtained image data is saved in memory 206 (step S1302), and it transmits to a host computer 201 in the resolution which had the image data specified (step S1304).
[0059] Drawing 14 shows actuation by the printer 1000 which received the PDL data transmitted after step S1014 of drawing 10 .
[0060] Reception of PDL data processes analyzing the data etc. (step S1402). (step S1401) And it judges whether the instruction which directs composition of scanner data is included in the PDL data (step S1403). When contained, the location (dx1, dy1) which shows the selection field of PDL data to scanning data, and size x*y are obtained (step S1407). And the scanning data equivalent to a location (dx1, dy1) and the selection field of size x*y are read (step S1408). Under the present circumstances, if scanning data are already read for the preview display, it will not scan anew. In this case, the selection field set up is started from the data saved at step S1302 of drawing 13 . If the preview is not performed, it will scan here and a manuscript image will be read.
[0061] The selection field of the read scanning data is developed in the location (dx2, dy2) of the set-up insertion field (step S1409).
[0062] When it is judged that there are no directions of composition of scanning data in step S1403, after step S1409, it develops in memory 206 based on PDL data at a dot image data (step S1405). At this time, a dot image data is developed so that the data which are already in memory 206 may be made into a background. Therefore, if scanning data are already stored in memory 206 at step S1409, it will be made into a background and an image will be compounded. In this way, if 1-page data are obtained (step S1406- YES), printing will be performed in step S1410.
[0063] Drawing 15 is drawing showing an example of the scanner data compounded in an above-mentioned procedure, and PDL data. In drawing 15 , the image in the selection field set up on the data 901 read with the scan is compounded by the insertion field of the PDL data 902.
[0064] A selection field can be freely set up into scanning data on the screen of a host computer as mentioned above. Since this setup can be performed looking at the preview of scanning data, the partial image which a user desires can be chosen correctly and the selected part can be compounded in images,

such as a document expressed by PDL data. For this reason, it is not necessary to carry out location ****** of the selection field in the manuscript image scanned correctly beforehand to the insertion field of the scanning data in the printed matter which it is finally going to output. Moreover, since composition is performed in a printer, the processing load in a host computer is mitigable.
[0065] Furthermore, to perform the preview display of scanning data, it is necessary to transmit image data to a host computer from a scanner. In this case, the image data thinned out and carried out according to the display screen is enough as the image data transmitted. Moreover, it is not necessary to transmit scanning data to a printer from a host computer. For this reason, the image data sent out on a network is small data, and does not increase communicative traffic.
[0066] In addition, it is made to perform actuation of being as add **** [, and]. [moving the insertion frame 609 in which an insertion field is shown after step S1009 of drawing 10] [changing the size] In that case, the instruction according to these actuation is added also to the PDL data created at step S1014 with migration and an addition of an insertion frame. Moreover, when the size of the insertion frame 609 is changed, the size of the selection frame 610 is also changed according to it.
[0067] [the 5th operation gestalt] -- although it was determined with the 3rd and 4th operation gestalt whether have scanned at the time of the PDL data origination before the printer driver window 602 is started, it can make it possible to compound scanning data, after starting the printer driver window 602
[0068] According to the flow chart of drawing 16 , the configuration procedure of the selection field in this operation gestalt is explained, referring to drawing 17 . In addition, the structure of a system is the same as that of the gestalt of the 1st thru/or the 4th operation.
[0069] First, the processing on a host computer 201 is explained according to the flow chart of drawing 16 . The processing in a printer is the same as that of drawing 13 of the 4th operation gestalt, and drawing 14 . A user draws up a document etc. using a predetermined application program. The user adds the size and the location of the instruction of a purport to insert scanning data in, and an insertion field to the page of a request of this document. It depends for this actuation on the application which draws up a document.
[0070] A printer driver will be started if a printing demand is advanced. The procedure of drawing 16 shows actuation of the printer driver after this. First, among the screens shown in drawing 17 , a printer driver changes the scanning data incorporation carbon button 10001 into a selectable condition, and displays the printer driver window 602 (step S1601).
[0071] Then, it waits until an operator operates the carbon button of either of the displayed screens (step S1602). If one of carbon buttons is pushed, it will progress to step S1603 and will judge [which carbon button was pushed and].
[0072] When the scanning data incorporation carbon button 604 is pushed, it progresses to step S1604. First, to a scanner 202, loading of a manuscript image is required, and a scanner reads in response to it and receives the image data which transmitted (step S1604). A printer driver displays the image data which received as a preview window 607 of drawing 17 (step S1605). An operator looks at this screen and operates it using the frame migration carbon button 611 etc. According to this actuation, the selection frame 610 in which a selection field is shown is moved, and while recording that location, it displays (step S1606).
[0073] When the scanning data insertion point carbon button 603 (hidden in drawing 17) is pushed, the insertion point window 606 is displayed (step S1607). In this screen, the insertion frame 609 is displayed based on the synthetic part of the scanning data set as document data [finishing / creation].
[0074] When the print preview carbon button 605 is pushed, a non-illustrated print preview screen is displayed (step S1609). However, nothing is displayed into an insertion field. And it judges whether the preview of scanning data was performed about the page currently displayed (step S1610). If carried out, from the image data which received from the scanner in step S1604, the interior of the selection frame set up at step S1606 will be started, and it will be compounded and displayed on an insertion field (step S1611).
[0075] Moreover, when a print button 605 is pushed, document data [finishing / creation], the location of an insertion field and size which are set up, and the location and size of a selection field

corresponding to it are changed into PDL data at the time, and it transmits to a printer 1000 (step S1612).

[0076] In addition, when a scanning data incorporation carbon button is not pushed, PDL data are generated so that the field of the location corresponding to the insertion field of the scanning data defined in document data and size may be made into a selection field.

[0077] With the above procedure, the same operation effectiveness as the 4th operation gestalt can be acquired. Furthermore, even if an operator does not choose a selection field anew, the field on the scanning data corresponding to an insertion field is chosen as a selection field. For this reason, an operator can exclude the decision of the location of a selection field.

[0078] The field of the scanning data assigned with the insertion field in the [6th operation gestalt] and 3rd, and 4th operation gestalt When it is judged that a comparison means to compare magnitude with a (following and quota field) is established, and area size changes with comparison means, The warning message which tells that area size differs may be sent, processing may be stopped by error, or the function which can carry out enlarging or contracting of the quota field automatically, and can be doubled with an insertion field may be prepared. At this time, the change of whether warning and an error message are sent or to perform expansion/contraction automatically can be set up from a control panel 1012 or a host computer.

[0079] With the 3rd and 4th operation gestalten, the size of a selection field was determined according to the size of an insertion field, and an operator was not able to change it. However, with this operation gestalt, not only the location of a selection field but size can be changed in step S1008 of drawing 10 , and step S1606 of drawing 16 . The example in which size was automatically changed into drawing 18 is shown. In the case of drawing 18 , the selection field on scanning data is the image 1801 whole. On the other hand, the insertion field 1803 defined on the PDL data 1802 is a field smaller than it. In this case, it is reduced and an image 1801 is compounded by the insertion field 1803. Therefore, at step S1014 of drawing 10 , and step S1612 of drawing 16 , into PDL data, the image in the selection field of scanning data is set by the size of an insertion field, and expansion / instruction made to reduce also incorporates it. A printer 1000 interprets this instruction, expands / reduces scanning data, and compounds them with PDL data.

[0080] Before printing if this operation gestalt is used as explained above, it can know that the fields of the scanning data which a user uses for composition, and PDL data differ by an error or the warning message, and suitable measures can be taken.

[0081] Since enlarging or contracting of scanning data can be carried out automatically and the image in a selection field can also be set by the size of an insertion field, scanning data are expanded beforehand or it becomes unnecessary moreover, to reduce.

[0082] In [various modification] above-mentioned each operation gestalt, although the resolution of a scanner was beforehand set up by PDL1000, the scanner control section 208 asks a control panel 1012 the resolution of a printer, and it can incorporate data from a scanner 202 in the resolution inputted as a result. When it cannot carry out in the obtained resolution, it is the resolution nearest to it and data are incorporated from a scanner 202.

[0083] Moreover, with each above-mentioned operation gestalt, although the insertion field was beforehand specified in PDL data, also when a certain data already exist in the specified PDL data, it thinks. When such, you may enable it to specify either with a control panel 1012 or a host computer 201 from two methods of whether priority is given to PDL data, or priority is given to scanning data.

[0084] Drawing 19 is drawing which illustrated the data compounded according to this operation gestalt. The case where selection field 1901a in the scanner data 1901 is compounded with insertion field 1902a in the PDL data 1902 is considered. In this case, in order to develop scanning data priority, i.e., PDL data, as a dot image data previously and to pile up scanning data on it, it becomes like an image 1903. If it says by drawing 14 in order to carry out like this, not to develop the PDL data of step S1405 after step S1409, but what is necessary is just made to carry out between step S1402 and step S1403.

[0085] Moreover, since it is thought that priority is given to PDL data, the gestalt of the above 3rd and the 4th implementation should just develop PDL data after expansion of scanning data like drawing 14 ,

when it gives priority to PDL data.
[0086] Moreover, in order to change these, to process as drawing 14 , if the value of the flag is 1, and if it is 0, not to develop the PDL data of step S1405 after step S1409, but what is necessary is made to form the flag which changes a value according to actuation of an operator or the directions from a host computer, and just to carry out between step S1402 and step S1403.
[0087] Furthermore, priority cannot be given to either and the overlapping image can also be put in order in piles. Drawing 20 is drawing showing the example which compounds the PDL data 700 and the scanning data 705. If priority is given to scanning data, a certain image will already be outputted to the insertion field 701 of PDL data like an image 720. If priority is given to PDL data, the image in the selection field 706 of scanning data will be outputted like an image 710. If composition is chosen, both images will be set [they pile them up and] and outputted like an image 730. A user can also be made to specify the operation for piling up two images by the approach of this last. For example, the value of each corresponding pixel can be added, or if it is a binary image, an OR, an exclusive OR, etc. can be chosen. Even when PDL data are already in the field of the PDL data which insert scanning data by doing in this way, it can adjust on an airline printer.
[0088] Moreover, with an above-mentioned operation gestalt, although composition with scanning data and PDL data has been explained, even if the data compounded are image data other than scanning data, this operation gestalt is applicable.
[0089] Moreover, all the operation gestalten mentioned above were the systems by which the printer and the scanner became independent. However, the technique of image composition explained in each above-mentioned example is applicable to the system which connected with the host computer the digital compound machine which can be used as a copying machine, facsimile or a scanner, and a printer simple substance including a scanner and a printer.
[0090]
[Other operation gestalten] In addition, even if it applies this invention to the system which consists of two or more devices (for example, a host computer, an interface device, a reader, a printer, etc.), it may be applied to the equipments (for example, a copying machine, facsimile apparatus, etc.) which consist of one device.
[0091] Moreover, the purpose of this invention supplies the storage which recorded the program code of the software which realizes the function of the operation gestalt mentioned above to a system or equipment, and is attained also by carrying out read-out activation of the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage.
[0092] In this case, the function of the operation gestalt which the program code itself read from the storage mentioned above will be realized, and the storage which memorized that program code will constitute this invention.
[0093] As a storage for supplying a program code, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, the memory card of a non-volatile, ROM, etc. can be used, for example.
[0094] Moreover, by performing the program code which the computer read, a part or all of processing that OS (operating system) which the function of the operation gestalt mentioned above is not only realized, but is working on a computer based on directions of the program code is actual is performed, and also when the function of the operation gestalt mentioned above by the processing is realized, it is contained.
[0095] Furthermore, after the program code read from the storage is written in the memory with which the functional expansion unit connected to the functional add-in board inserted in the computer or the computer is equipped, a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped is actual performs, and also when the function of the operation gestalt mentioned above by the processing is realized, it is contained based on directions of the program code.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the example of the printing structure of a system in the 1st thru/or 2nd operation gestalt.
[Drawing 2] It is the sectional view of the laser beam printer 1000.
[Drawing 3] It is the flow chart which shows the operations sequence of the printer by the 1st operation gestalt.
[Drawing 4] It is the example of the image compounded in the 1st operation gestalt and each 2nd operation gestalt.
[Drawing 5] It is the flow chart which shows the operations sequence of the printer by the 2nd operation gestalt.
[Drawing 6] It is drawing showing the situation of the image composition by the printer of the 2nd operation gestalt.
[Drawing 7] It is the block diagram showing the example of the printing structure of a system in the 3rd thru/or 6th operation gestalt.
[Drawing 8] It is the flow chart which shows the operations sequence in the 3rd LBP1000 and host computer 201 in an operation gestalt.
[Drawing 9] It is drawing of the preview window of the scanner data displayed on a host computer with the 3rd operation gestalt.
[Drawing 10] It is the flow chart which shows the operations sequence of the host computer by the 4th operation gestalt.
[Drawing 11] It is drawing of the printer driver window displayed on a host computer with the 4th and 5th operation gestalten.
[Drawing 12] It is drawing of the screen displayed on a host computer with the 4th operation gestalt.
[Drawing 13] It is the flow chart which shows the reading procedure of the preview screen by the printer in the 4th and 5th operation gestalten.
[Drawing 14] It is the flow chart of the operations sequence of the printer in the 4th and 5th operation gestalten.
[Drawing 15] In the 4th and 5th operation gestalten, it is drawing showing the example of the image compounded.
[Drawing 16] It is the flow chart which shows the operations sequence of the host computer by the 5th operation gestalt.
[Drawing 17] It is drawing of the screen displayed on a host computer with the 5th operation gestalt.
[Drawing 18] It is drawing showing the example of the image compounded in the 6th operation gestalt.
[Drawing 19] It is drawing showing the example of the image at the time of giving priority in the image to compound.
[Drawing 20] It is drawing showing the example of the image at the time of giving priority in the image to compound.
201 Host Computer

202 Scanner
204 I/O
205 PDL Analysis Section
206 Memory
207 I/O
208 Scanner Control Section
209 Engine
507 I/O

[Translation done.]

* NOTICES *

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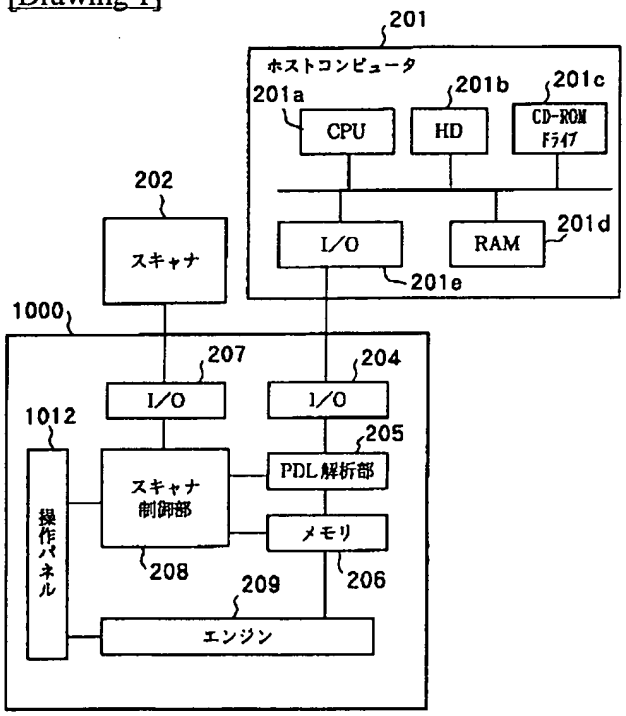
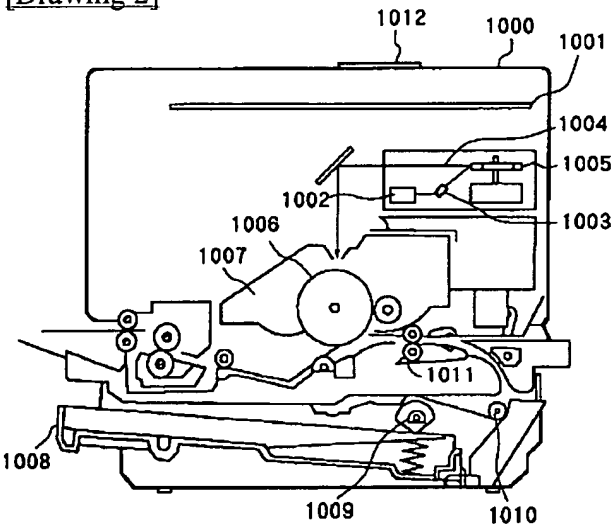
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

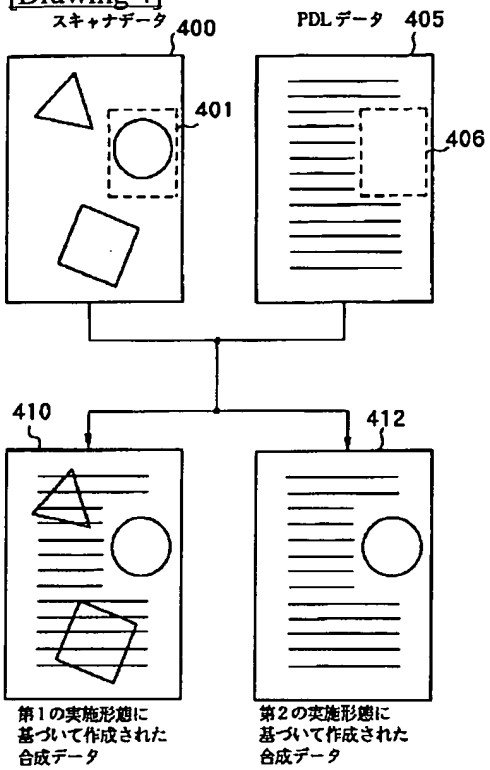
[Drawing 1]



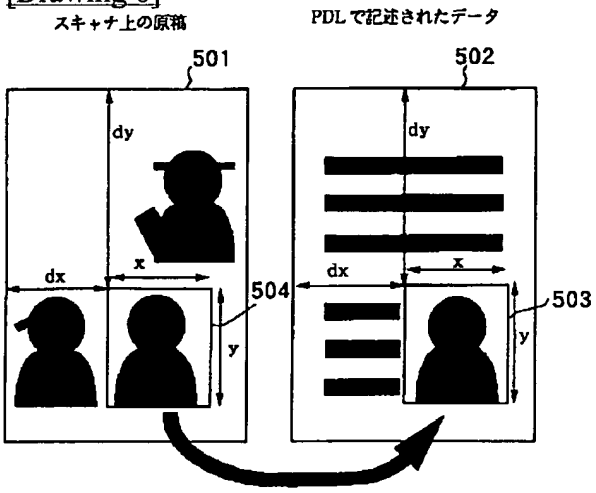
[Drawing 2]



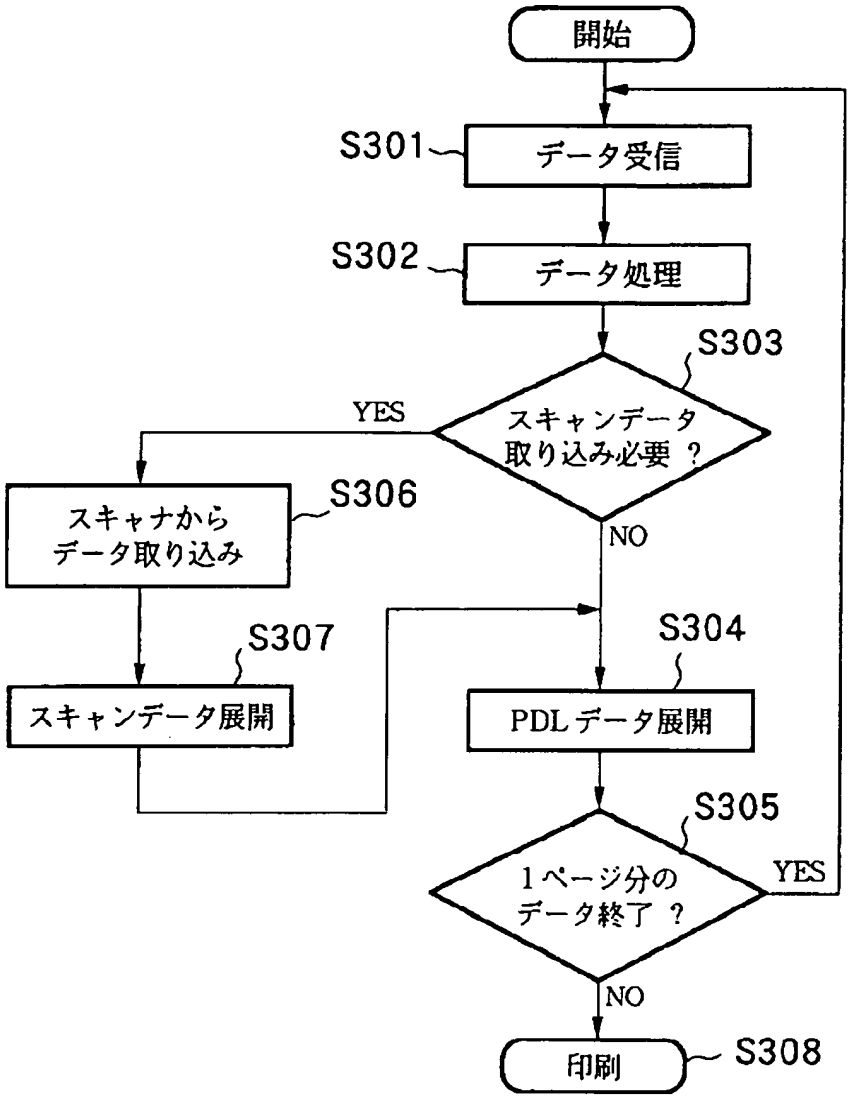
[Drawing 4]



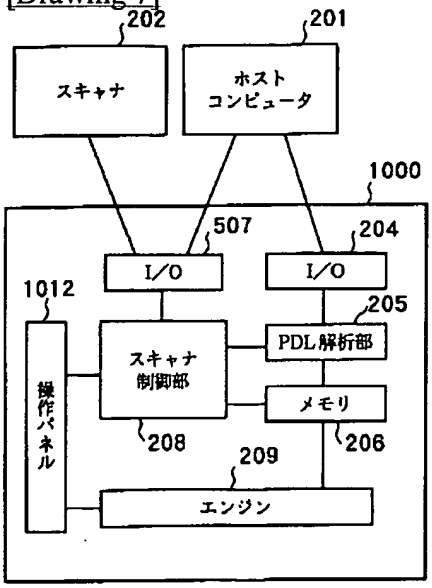
[Drawing 6]



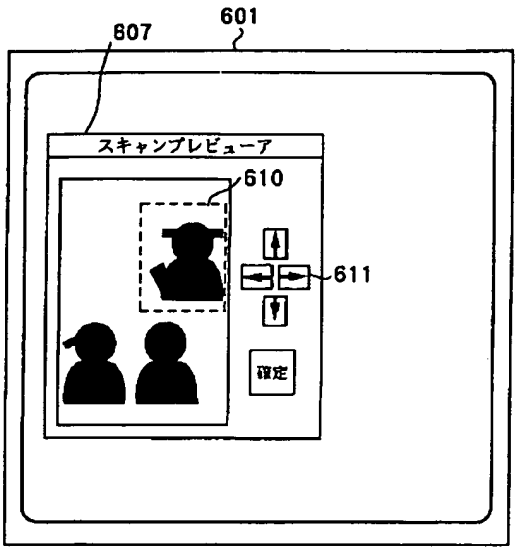
[Drawing 3]



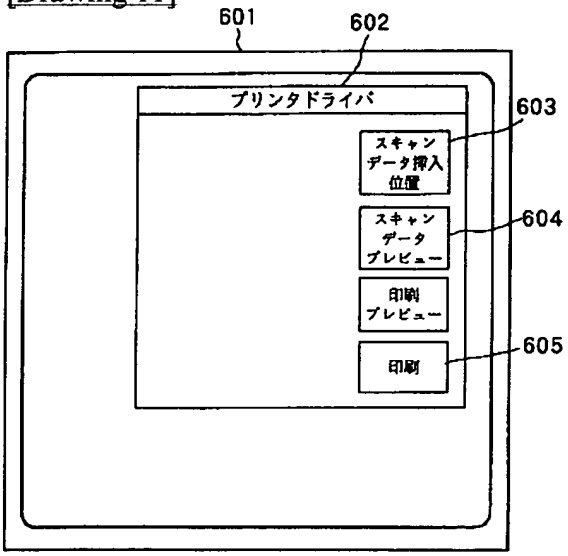
[Drawing 7]



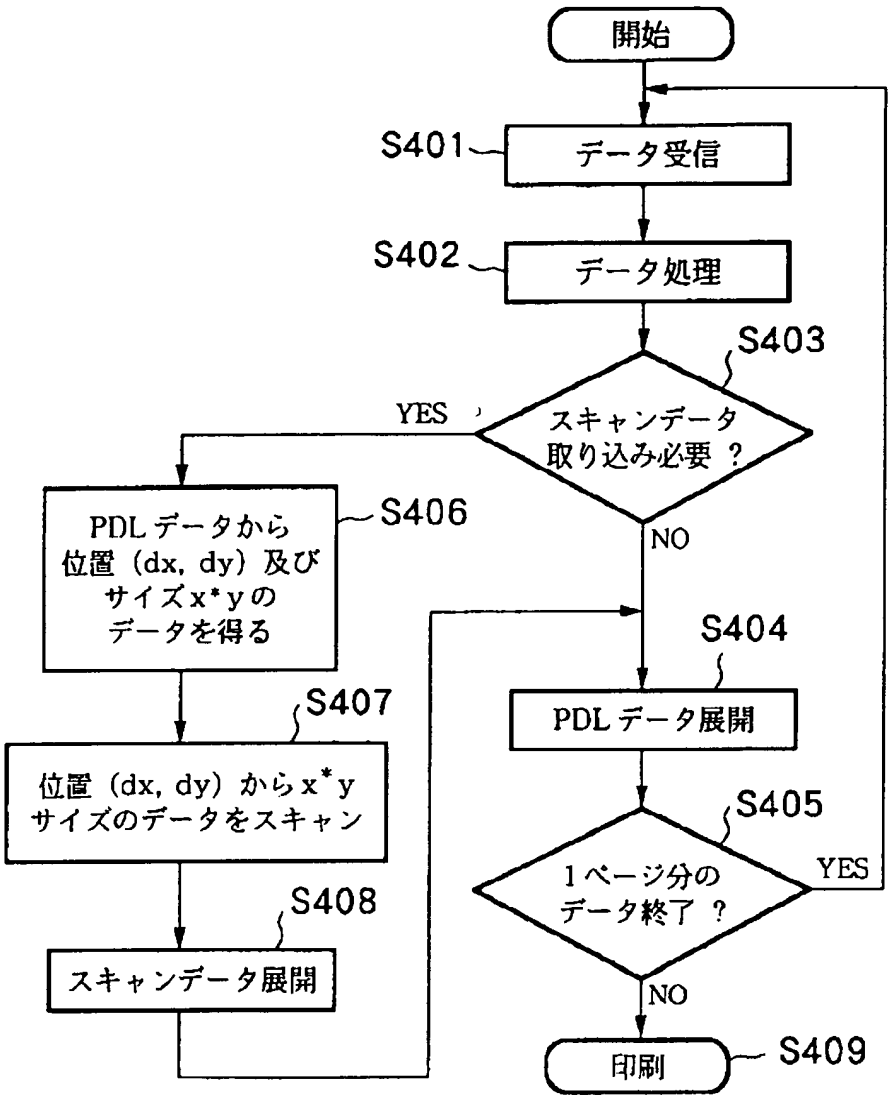
[Drawing 9]



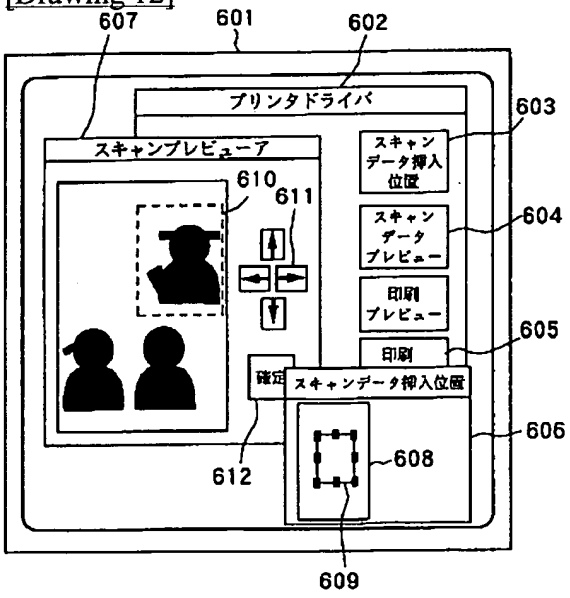
[Drawing 11]



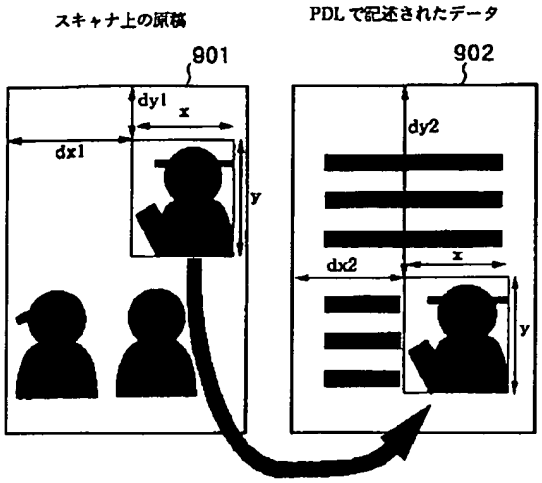
[Drawing 5]



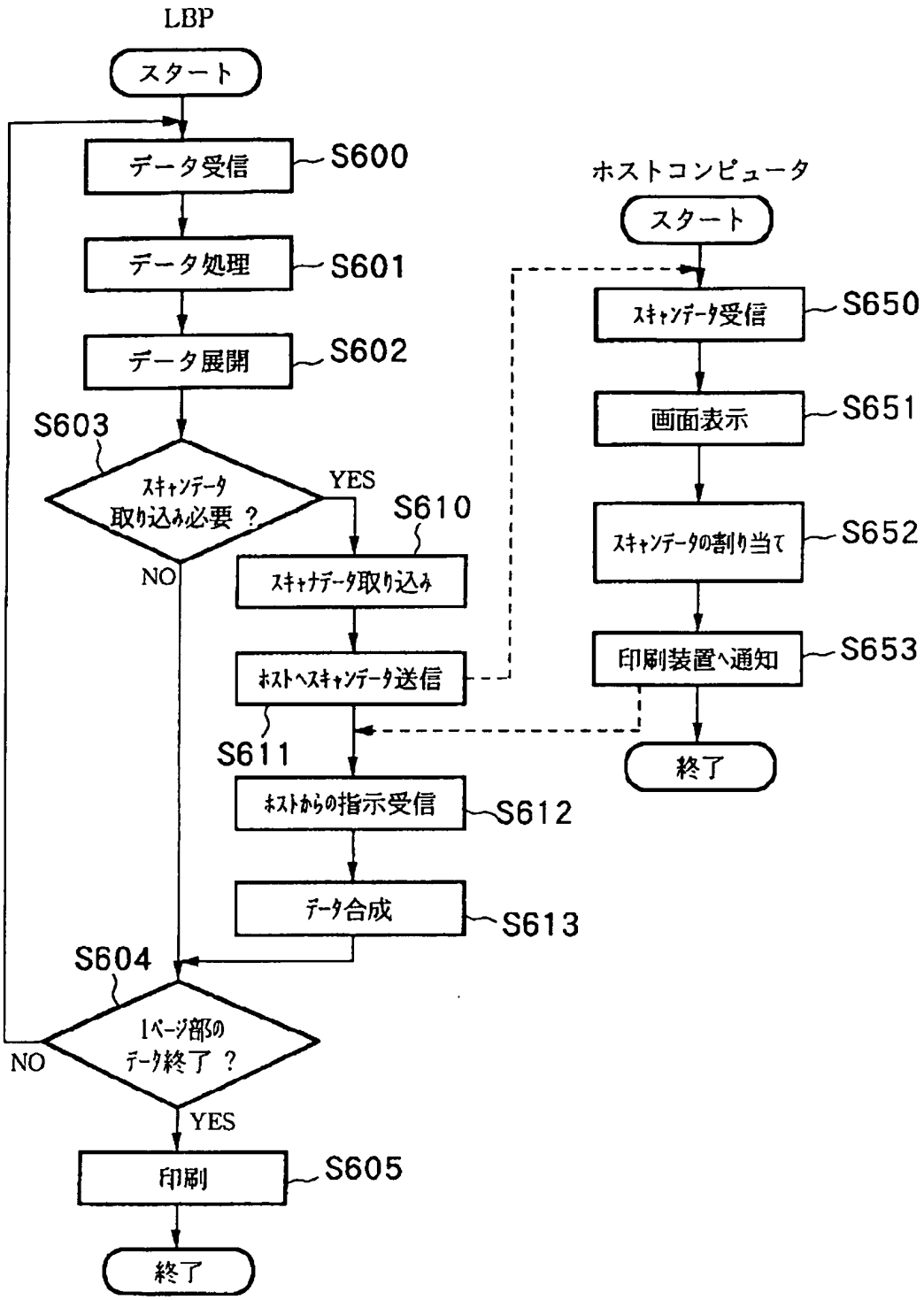
[Drawing 12]



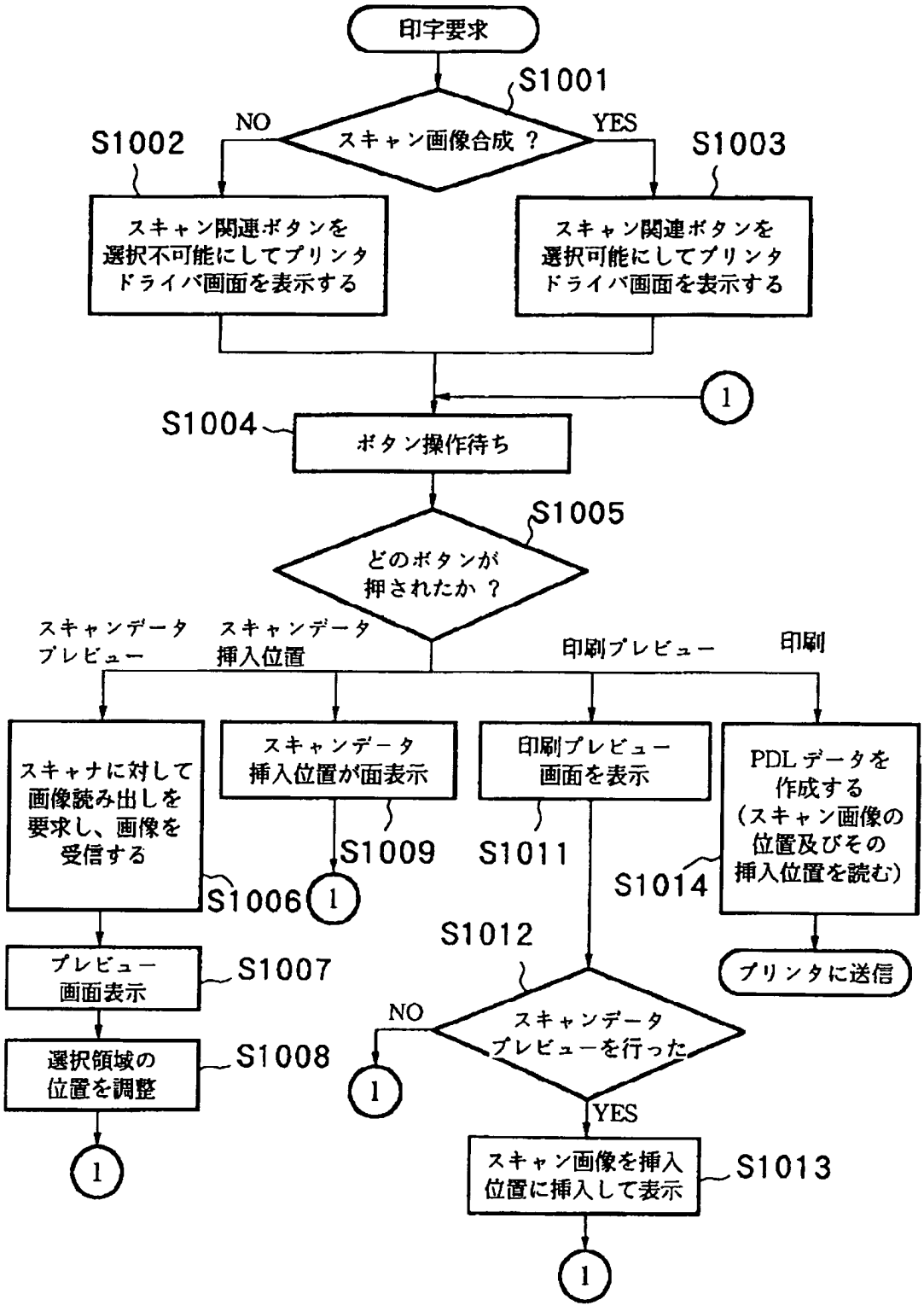
[Drawing 15]



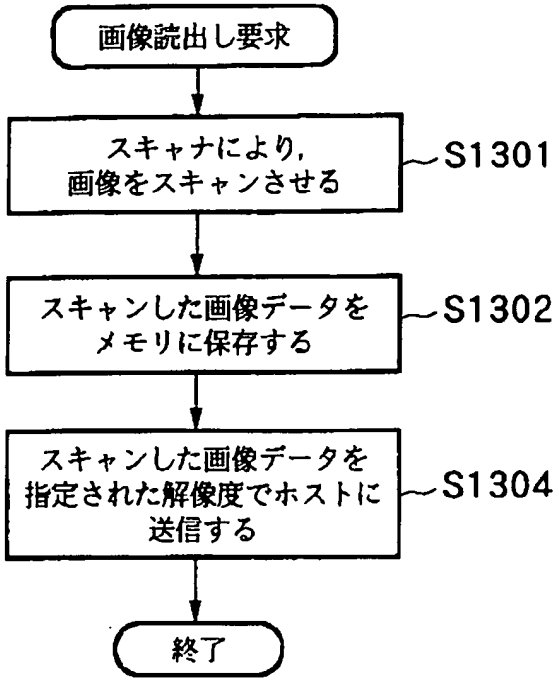
[Drawing 8]


LBP
スタート
データ受信
S600
データ処理
S601
データ展開
S602
S603
スキャンデータ
取り込み必要 ？
YES
NO
S610
スキャナデータ取り込み
ホストへスキャンデータ送信
S611
ホストからの指示受信
S612
データ合成
S613
S604
1ページ部の
データ終了 ？
NO
YES
印刷
S605
終了
ホストコンピュータ
スタート
スキャンデータ受信
S650
画面表示
S651
スキャンデータの割り当て
S652
印刷装置へ通知
S653
終了

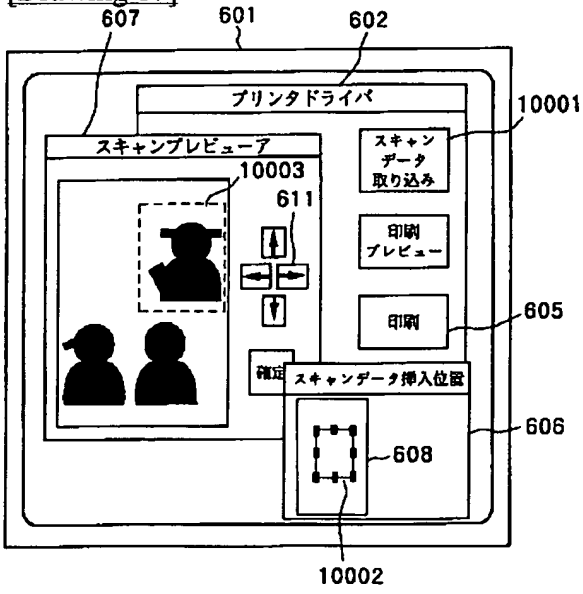
[Drawing 10]


印字要求
S1001
スキャン画像合成 ？
NO
YES
S1002
S1003
スキャン関連ボタンを選択不可能にしてプリンタドライバ画面を表示する
スキャン関連ボタンを選択可能にしてプリンタドライバ画面を表示する
1
S1004
ボタン操作待ち
S1005
どのボタンが押されたか ？
スキャンデータプレビュー
スキャンデータ挿入位置
印刷プレビュー
印刷
スキャナに対して画像読み出しを要求し、画像を受信する
S1006
スキャンデータ挿入位置が面表示
S1009
印刷プレビュー画面を表示
S1011
PDLデータを作成する（スキャン画像の位置及びその挿入位置を読む）
S1014
プリンタに送信
プレビュー画面表示
S1007
選択領域の位置を調整
S1008
S1012
スキャンデータプレビューを行った
NO
YES
スキャン画像を挿入位置に挿入して表示
S1013

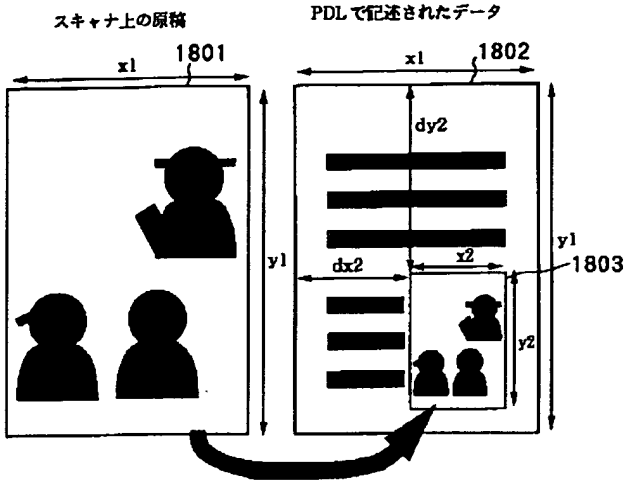
[Drawing 13]



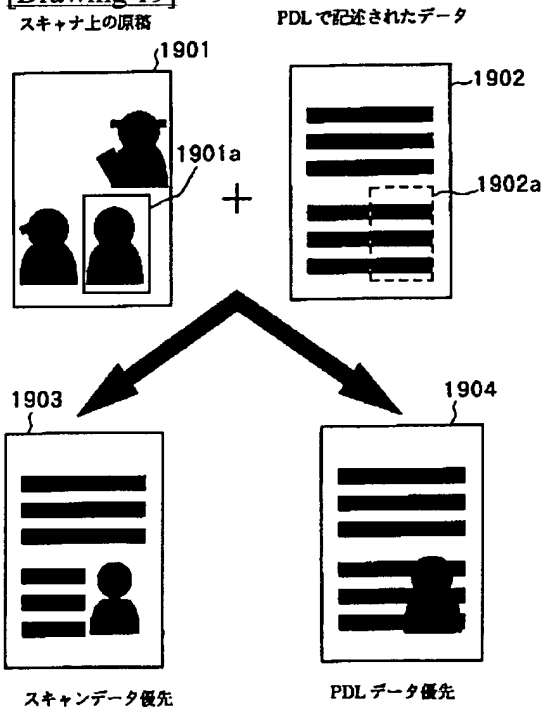
[Drawing 17]



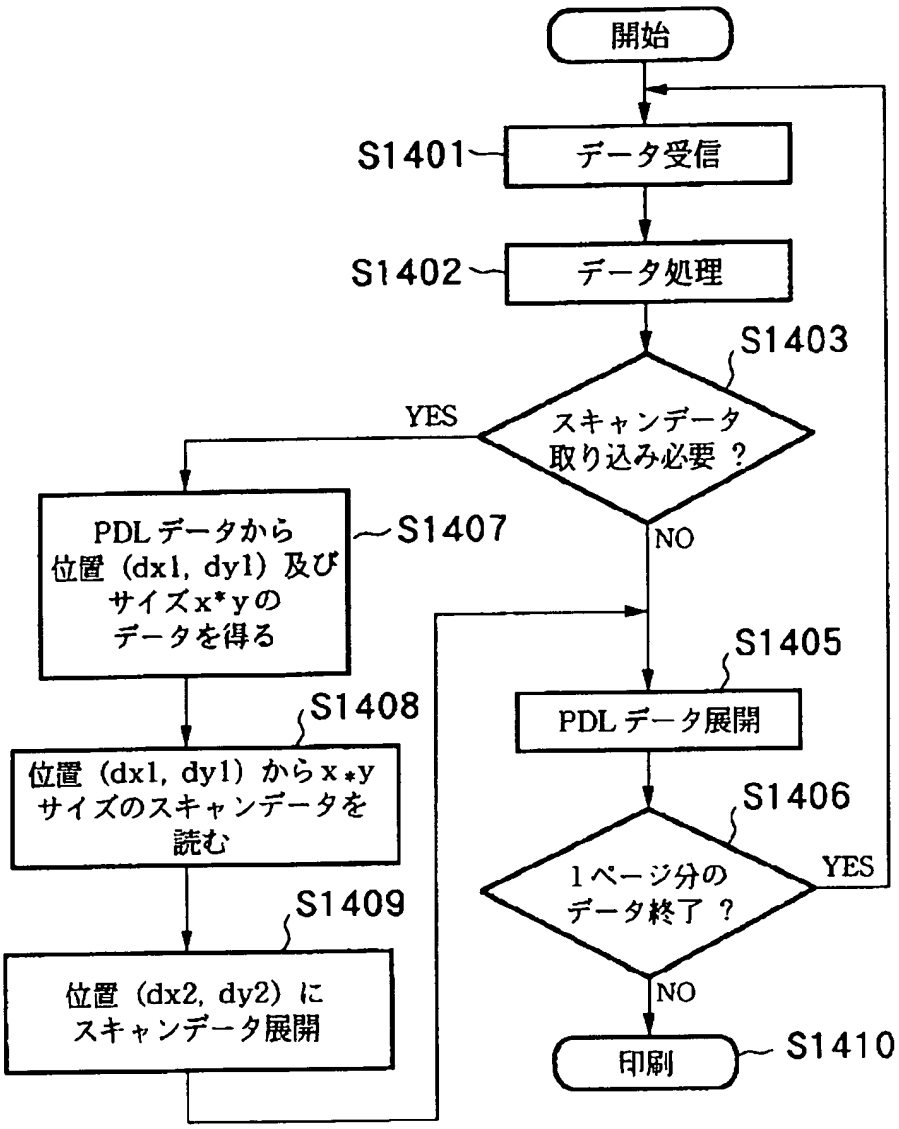
[Drawing 18]



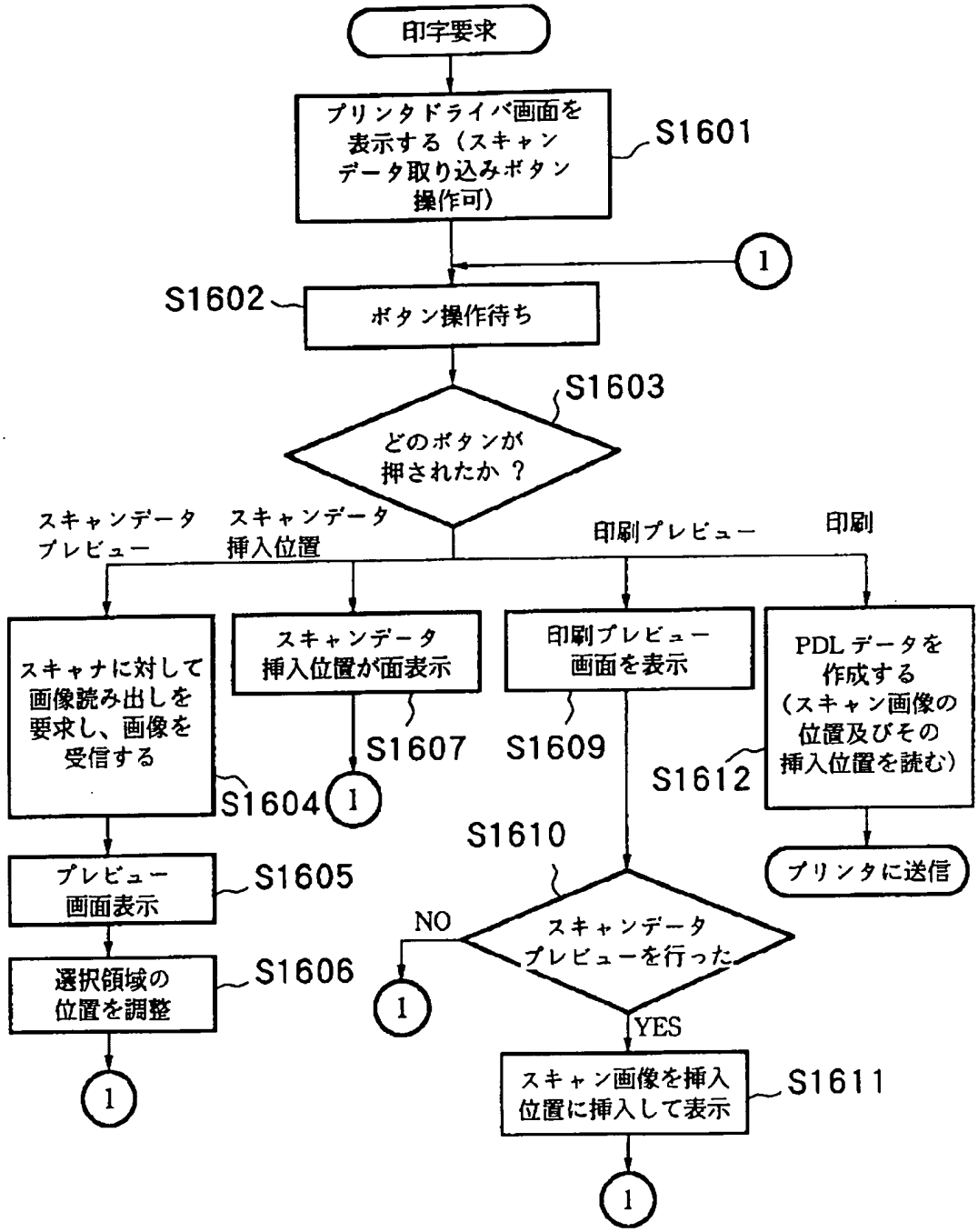
[Drawing 19]



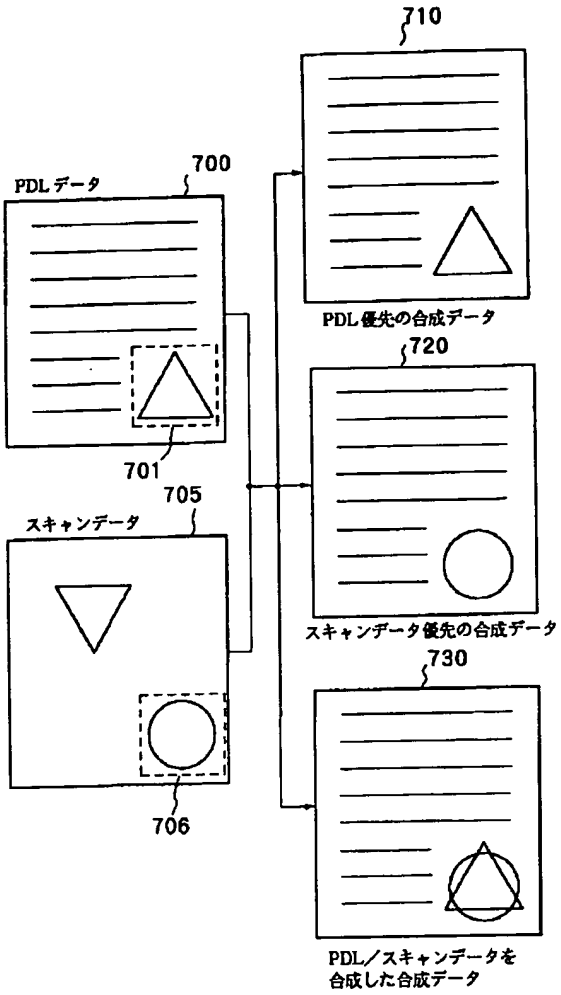
[Drawing 14]


開始
S1401
データ受信
S1402
データ処理
S1403
スキャンデータ
取り込み必要 ？
YES
NO
PDLデータから
位置（dx1, dy1）及び
サイズx*yの
データを得る
S1407
S1408
位置（dx1, dy1）からx*y
サイズのスキャンデータを
読む
S1409
位置（dx2, dy2）に
スキャンデータ展開
S1405
PDLデータ展開
S1406
1ページ分の
データ終了 ？
YES
NO
印刷
S1410

[Drawing 16]


印字要求
プリンタドライバ画面を表示する（スキャンデータ取り込みボタン操作可）
S1601
1
S1602
ボタン操作待ち
S1603
どのボタンが押されたか？
スキャンデータプレビュー
スキャンデータ挿入位置
印刷プレビュー
印刷
スキャナに対して画像読み出しを要求し、画像を受信する
S1604
スキャンデータ挿入位置が面表示
S1607
印刷プレビュー画面を表示
S1609
PDLデータを作成する（スキャン画像の位置及びその挿入位置を読む）
S1612
プリンタに送信
プレビュー画面表示
S1605
選択領域の位置を調整
S1606
S1610
NO
スキャンデータプレビューを行った
YES
スキャン画像を挿入位置に挿入して表示
S1611

[Drawing 20]



[Translation done.]

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3.In the drawings, any words are not translated.

CORRECTION OR AMENDMENT

[Kind of official gazette] Printing of amendment by the convention of 2 of Article 17 of Patent Law
[Section partition] The 3rd partition of the 6th section
[Publication date] March 28, Heisei 15 (2003. 3.28)

[Publication No.] JP,11-242578,A
[Date of Publication] September 7, Heisei 11 (1999. 9.7)
[Annual volume number] Open patent official report 11-2426
[Application number] Japanese Patent Application No. 10-324047
[The 7th edition of International Patent Classification]

G06F 3/12

B41J 21/00
G06T 1/00
H04N 1/387

[FI]

G06F 3/12 F
C
B41J 21/00 Z
H04N 1/387
G06F 15/66 450

[Procedure revision]
[Filing Date] December 16, Heisei 14 (2002. 12.16)
[Procedure amendment 1]
[Document to be Amended] Specification
[Item(s) to be Amended] Claim
[Method of Amendment] Modification
[Proposed Amendment]
[Claim(s)]
[Claim 1] A detection means to detect the instruction which directs composition with these print data and image data out of the print data transmitted from the external device,
An incorporation means to incorporate image data if said instruction is detected by said detection means,

The airline printer characterized by having the image obtained based on said print data in the image data incorporated by said incorporation means, and a synthetic means to compound.
[Claim 2] Said instruction is an airline printer according to claim 1 characterized by including the instruction which directs the insertion field which inserts said read image data into a page.

[Claim 3] A transmitting means to transmit the image data incorporated by said incorporation means to said external device,
It has further a receiving means to receive the selection field information which shows the part which should compound in said image data from said external device,
Said synthetic means is an airline printer according to claim 2 characterized by compounding the image data contained to the selection field of said image data which said selection field information shows, and the image data of said insertion field.
[Claim 4] Furthermore, a comparison means to compare said insertion field and said selection area size, The airline printer according to claim 3 which stops actuation of the airline printer concerned or is characterized by expanding or reducing the image data in said quota field, and doubling with said insertion area size or it tells a user about this decision result when decision that magnitude changes with said comparison means is made.
[Claim 5] A decision means to judge whether the command which directs to incorporate image data and to compound the image based on print data and the image based on image data is contained in the print data transmitted from the external device,
A taking-in means to incorporate image data according to said directions,
A transfer means to transmit the image data concerned to said external device in order to display the image based on the image data incorporated by the aforementioned taking-in means,
A receiving means to receive the directions from [from said external device] an operator,
The airline printer characterized by having a synthetic means to compound the image based on the image data incorporated by the aforementioned taking-in means, and the image based on print data, according to the directions received by said receiving means.
[Claim 6] The detection process which detects the instruction which directs composition with these print data and image data out of the print data transmitted from the external device,
The incorporation process which will incorporate image data if said instruction is detected by said detection process,
The printing approach characterized by having the image obtained based on said print data in the image data incorporated according to said incorporation process, and the synthetic process to compound.
[Claim 7] It is the information processing approach performed with the information processor connected with the airline printer which can take in image data from a scanner,
The data transmitting process of transmitting print data including the instruction which directs the insertion field which inserts image data to said airline printer,
The receiving process which receives the image data which said airline printer incorporated from the scanner according to said directions from this airline printer,
The display process which displays the image data received according to said receiving process,
The image data directions process of directing the image data inserted in said insertion field based on the image data displayed by said display process,
The information processing approach characterized by including the transmitting process which transmits the result depended on said directions process to said airline printer.
[Claim 8] The image data received according to said receiving process is the information processing approach according to claim 7 characterized by including the image data to which resolution was lowered by said airline printer.
[Claim 9] Said display process is claim 7 characterized by to transmit to said airline printer as a field of the image data which displays the frame of the size equivalent to an insertion field, moves said frame according to directions by said directions process onto the image data which received, and inserts the location and the size of said frame in said insertion field according to said transmitting process, or the information-processing approach given in 8.
[Claim 10] It is the information processing approach in the information processor which can create the document data connected with the airline printer which can take in image data from a scanner,
The reading process which reads image data from a scanner through said airline printer according to the information on the insertion field which should insert image data included in document data,

The display process which displays the read image data,
The image data directions process of directing the selection field which shows the field of the image data inserted in said document data based on the image data displayed by said display process,
The information processing approach characterized by including the print-data creation process including the information on said insertion field and said selection field which creates the print data which can be interpreted with said airline printer, and is transmitted to an airline printer based on said document data, said insertion field, and said selection field.
[Claim 11] The information-processing approach according to claim 10 characterized by to display the frame showing a selection field while reading image data according to said reading process and displaying this image according to said display process, when it has further the carbon button display process which displays the carbon button it is directed that reads said image data from a scanner when [which outputs said document data] purport directions are carried out and said carbon button is operated.
[Claim 12] Said carbon button display process is the information processing approach according to claim 10 characterized by displaying the insertion field in said document data when the carbon button on which the insertion field in said document data which insert the read image data is displayed is displayed further and this carbon button is operated.
[Claim 13] It is the information processor connected with the airline printer which can take in image data from a scanner,
A data transmitting means to transmit print data including the instruction which directs the insertion field which inserts image data to said airline printer,
A receiving means to receive the image data which said airline printer incorporated from the scanner according to said directions from this airline printer,
A display means to display the image data received by said receiving means,
An image data directions means to direct the image data inserted in said insertion field based on the image data displayed by said display means,
The information processor characterized by including a transmitting means to transmit the result depended on said directions means to said airline printer.
[Claim 14] It is the information processor which can create the document data connected with the airline printer which can take in image data from a scanner,
A reading means to read image data from a scanner through said airline printer according to the information on the insertion field which should insert image data included in document data,
A display means to display the read image data,
An image data directions means to direct the selection field which shows the field of the image data inserted in said document data based on the image data displayed by said display means,
The information processor characterized by including a print-data creation means including the information on said insertion field and said selection field to create the print data which can be interpreted with said airline printer, and to transmit to an airline printer, based on said document data, said insertion field, and said selection field.
[Claim 15] The computer connected with the airline printer which can take in image data from a scanner,
The data transmitting process of transmitting print data including the instruction which directs the insertion field which inserts image data to said airline printer,
The receiving process which receives the image data which said airline printer incorporated from the scanner according to said directions from this airline printer,
The display process which displays the image data received according to said receiving process,
The image data directions process of directing the image data inserted in said insertion field based on the image data displayed by said display process,
The computer-readable record medium characterized by wanting to record the program for performing the transmitting process which transmits the result depended on said directions process to said airline printer.

[Claim 16] The computer connected with the airline printer which can take in image data from a scanner,
The reading process which reads image data from a scanner through said airline printer according to the information on the insertion field which should insert image data included in document data,
The display process which displays the read image data,
The image data directions process of directing the selection field which shows the field of the image data inserted in said document data based on the image data displayed by said display process,
The computer-readable record medium characterized by wanting to record the program including the information on said insertion field and said selection field for performing the print-data creation process which creates the print data which can be interpreted with said airline printer, and is transmitted to an airline printer based on said document data, said insertion field, and said selection field.
[Procedure amendment 2]
[Document to be Amended] Specification
[Item(s) to be Amended] 0008
[Method of Amendment] Modification
[Proposed Amendment]
[0008] That is, it has the detection process which detects the instruction which directs composition with these print data and image data out of the print data transmitted from the external device, the incorporation process which will incorporate image data if said instruction is detected by said detection process, and the image obtained based on said print data in the image data incorporated according to said incorporation process and the synthetic process to compound.
[Procedure amendment 3]
[Document to be Amended] Specification
[Item(s) to be Amended] 0009
[Method of Amendment] Modification
[Proposed Amendment]
[0009] Or it is the information processing approach performed with the information processor connected with the airline printer which can take in image data from a scanner. The data transmitting process of transmitting print data including the instruction which directs the insertion field which inserts image data to said airline printer, The receiving process which receives the image data which said airline printer incorporated from the scanner according to said directions from this airline printer, The display process which displays the image data received according to said receiving process, Based on the image data displayed by said display process, the image data directions process of directing the image data inserted in said insertion field, and the transmitting process which transmits the result depended on said directions process to said airline printer are included.
[Procedure amendment 4]
[Document to be Amended] Specification
[Item(s) to be Amended] 0010
[Method of Amendment] Modification
[Proposed Amendment]
[0010] Or connected with the airline printer which can take in image data from a scanner. The reading process which is the information processing approach in the information processor which can create document data, and reads image data from a scanner through said airline printer according to the information on the insertion field which was included in document data, and which should insert image data, The image data directions process of directing the selection field which shows the field of the image data inserted in said document data based on the image data displayed by the display process which displays the read image data, and said display process, Based on said document data, said insertion field, and said selection field, the print-data creation process including the information on said insertion field and said selection field which creates the print data which can be interpreted with said airline printer, and is transmitted to an airline printer is included.

[Translation done.]

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特開平11－242578

(43)公開日　平成11年(1999)９月７日

(51)Int.Cl.[6]	識別記号	ＦＩ		
Ｇ０６Ｆ　3/12		Ｇ０６Ｆ　3/12		Ｆ
				Ｃ
Ｂ４１Ｊ　21/00		Ｂ４１Ｊ　21/00		Ｚ
Ｇ０６Ｔ　1/00		Ｈ０４Ｎ　1/387		
Ｈ０４Ｎ　1/387		Ｇ０６Ｆ　15/66	４５０	

審査請求　未請求　請求項の数36　ＯＬ　（全 21 頁）

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(33)優先権主張国　日本（ＪＰ）

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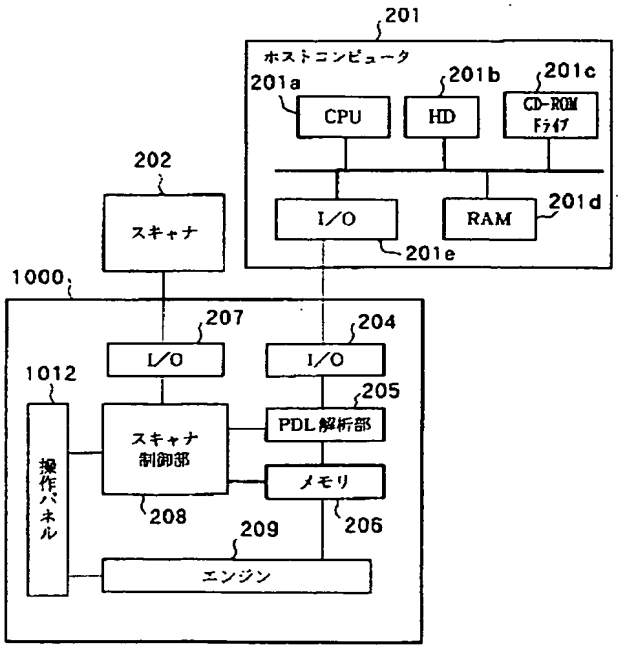
(74)代理人　弁理士　大塚　康徳　（外２名）

(54)【発明の名称】　印刷装置及び情報処理装置及びそれらの制御方法

(57)【要約】

【課題】スキャナで読んだ画像データを印刷データとを合成する場合、大量のメモリが必要で、データ処理に時間がかかるなどの問題がある

【解決手段】ホスト装置２０１からプリンタ１０００に送信する印刷データに、スキャナ２０２から読み込んだ画像を合成する旨の命令を組み込んでおき、プリンタ１０００によりその命令を実行させて、印刷データとスキャナデータとを合成させる。その際に、スキャナ２０２から読み込んだ画像を、ホスト装置２０１に転送して、ホスト装置２０１においてプレビュー表示させる。そして、プレビュー表示画面上で、印刷データから形成される画像に組み込むべき領域を操作者に選択させる。



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【特許請求の範囲】
【請求項１】　外部装置から送信された印刷データ中から、該印刷データと画像データとの合成を指示する命令を検出する検出手段と、
前記検出手段によって前記命令が検出されると、画像データを取り込む取り込み手段と、
前記取り込み手段によって取り込まれた画像データを前記印刷データに基づいて得られる画像と合成する合成手段とを備えることを特徴とする印刷装置。
【請求項２】　前記命令は、前記読み取られた画像データを挿入する挿入領域をページ中に指示する命令を含むことを特徴とする請求項１に記載の印刷装置。
【請求項３】　前記取り込み手段によって取り込まれた画像データを前記外部装置に送信する送信手段と、
前記外部装置より前記画像データ中の合成すべき部分を示す選択領域情報を受信する受信手段をさらに備え、
前記合成手段は、前記選択領域情報が示す前記画像データの選択領域に含まれる画像データと前記挿入領域の画像データとを合成することを特徴とする請求項２に記載の印刷装置。
【請求項４】　さらに、前記挿入領域と前記割り当て領域の大きさを比較する比較手段と、
前記比較手段によって大きさが異なるという判断がなされた場合、該判断結果をユーザに知らせる報知手段とを備えることを特徴とする請求項３に記載の印刷装置。
【請求項５】さらに、前記挿入領域と前記割り当て領域の大きさを比較する比較手段と、
さらに、前記比較手段によって大きさが異なるという判断がなされた場合、当該印刷装置の動作を中止する手段とを備えることを特徴とする請求項３に記載の印刷装置。
【請求項６】さらに、前記挿入領域と前記割り当て領域の大きさを比較する比較手段と、
さらに、前記比較手段によって大きさが異なるという判断がなされた場合、前記割り当て領域にある画像データを拡大あるいは縮小して前記挿入領域の大きさに合わせる変倍手段とを備える特徴とする請求項３に記載の印刷装置。
【請求項７】　さらに、前記挿入領域にすでにデータが存在する場合、該挿入領域の画像データと、前記選択領域の画像データのどちらを優先するかを選択する選択手段を備えることを特徴とする請求項２に記載の印刷装置。
【請求項８】　さらに、前記取り込み手段が画像データを取り込む際の解像度を設定する設定手段を備えることを特徴とする請求項１から７のいずれかに記載の印刷装置。
【請求項９】　前記画像データは、スキャナから送信される画像データを含むことを特徴とする請求項１に記載の印刷装置。
【請求項１０】　スキャナから画像データを取り入れることが可能な印刷装置と接続された情報処理装置であって、
画像データを挿入する挿入領域を指示する命令を含んだ印刷データを前記印刷装置へ送信するデータ送信手段と、
前記指示に従って前記印刷装置がスキャナから取り込んだ画像データを該印刷装置から受信する受信手段と、
前記受信手段によって受信された画像データを表示する表示手段と、
前記表示手段によって表示された画像データに基づいて、前記挿入領域に挿入する画像データを指示する画像データ指示手段と、
前記指示手段による結果を前記印刷装置に送信する送信手段とを含むことを特徴とする情報処理装置。
【請求項１１】　前記受信手段によって取り込まれる画像データは、前記印刷装置によって解像度が下げられた画像データを含むことを特徴とする請求項１０に記載の情報処理装置。
【請求項１２】　前記受信手段によって取り込まれる画像データは、当該情報処理装置によって解像度を下げられて受信されることを特徴とする請求項１０に記載の情報処理装置。
【請求項１３】　前記表示手段は、受信した画像データ上に挿入領域に相当するサイズの枠を表示し、前記指示手段による指示に応じて前記枠を移動し、前記送信手段により前記枠の位置及びサイズを、前記挿入領域に挿入する画像データの領域として前記印刷装置に送信することを特徴とする請求項１０に記載の情報処理装置。
【請求項１４】　スキャナから画像データを取り入れることが可能な印刷装置と接続された、文書データを作成可能な情報処理装置であって、
文書データに含まれた、画像データを挿入すべき挿入領域の情報に従って、前記印刷装置を介してスキャナから画像データを読み込む読み込み手段と、
読み込まれた画像データを表示する表示手段と、
前記表示手段によって表示された画像データに基づいて、前記文書データに挿入される画像データの領域を示す選択領域を指示する画像データ指示手段と、
前記文書データ及び前記挿入領域及び前記選択領域に基づいて、前記挿入領域及び前記選択領域の情報を含む、前記印刷装置により解釈可能な印刷データを作成して印刷装置に送信する印刷データ作成手段とを含むことを特徴とする情報処理装置。
【請求項１５】　前記文書データを出力する旨指示された場合に、スキャナから前記画像データを読み出すよう指示するボタンを表示するボタン表示手段をさらに備え、前記ボタンが操作された場合に、前記読み込み手段によって画像データを読み込み、前記表示手段により該画像を表示するとともに、選択領域を表す枠を表示する

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ことを特徴とする請求項１４に記載の情報処理装置。
【請求項１６】　前記ボタン表示手段は、読み込んだ画像データを挿入する前記文書データ中の挿入領域を表示させるボタンをさらに表示させ、該ボタンが操作された場合に、前記文書データ中の挿入領域を表示することを特徴とする請求項１４に記載の情報処理装置。
【請求項１７】　前記表示手段により表示される選択領域を示す枠は、前記挿入領域に対応するサイズで表示されることを特徴とする請求項１６に記載の情報処理装置。
【請求項１８】　前記表示手段により表示される挿入領域を示す枠を操作することで、前記挿入領域の位置あるいはサイズあるいはその両方を変更する手段をさらに備えることを特徴とする請求項１６に記載の情報処理装置。
【請求項１９】　スキャナから画像データを取り入れることが可能な印刷装置と接続された情報処理方法であって、
画像データを挿入する挿入領域を指示する命令を含んだ印刷データを前記印刷装置へ送信するデータ送信工程と、
前記指示に従って前記印刷装置がスキャナから取り込んだ画像データを該印刷装置から受信する受信工程と、
前記受信工程によって受信された画像データを表示する表示工程と、
前記表示工程によって表示された画像データに基づいて、前記挿入領域に挿入する画像データを指示する画像データ指示工程と、
前記指示工程による結果を前記印刷装置に送信する送信工程とを含むことを特徴とする情報処理方法。
【請求項２０】　前記受信工程によって取り込まれる画像データは、前記印刷装置によって解像度が下げられた画像データを含むことを特徴とする請求項１９に記載の情報処理方法。
【請求項２１】　前記受信工程によって取り込まれる画像データは、当該情報処理方法によって解像度を下げられて受信されることを特徴とする請求項１９に記載の情報処理方法。
【請求項２２】　前記表示工程は、受信した画像データ上に挿入領域に相当するサイズの枠を表示し、前記指示工程による指示に応じて前記枠を移動し、前記送信工程により前記枠の位置及びサイズを、前記挿入領域に挿入する画像データの領域として前記印刷装置に送信することを特徴とする請求項１９に記載の情報処理方法。
【請求項２３】　スキャナから画像データを取り入れることが可能な印刷装置と接続された、文書データを作成可能な情報処理方法であって、
文書データに含まれた、画像データを挿入すべき挿入領域の情報に従って、前記印刷装置を介してスキャナから画像データを読み込む読み込み工程と、
読み込まれた画像データを表示する表示工程と、
前記表示工程によって表示された画像データに基づいて、前記文書データに挿入される画像データの領域を示す選択領域を指示する画像データ指示工程と、
前記文書データ及び前記挿入領域及び前記選択領域に基づいて、前記挿入領域及び前記選択領域の情報を含む、前記印刷装置により解釈可能な印刷データを作成して印刷装置に送信する印刷データ作成工程とを含むことを特徴とする情報処理方法。
【請求項２４】　前記文書データを出力する旨指示された場合に、スキャナから前記画像データを読み出すよう指示するボタンを表示するボタン表示工程をさらに備え、前記ボタンが操作された場合に、前記読み込み工程によって画像データを読み込み、前記表示工程により該画像を表示するとともに、選択領域を表す枠を表示することを特徴とする請求項２３に記載の情報処理方法。
【請求項２５】　前記ボタン表示工程は、読み込んだ画像データを挿入する前記文書データ中の挿入領域を表示させるボタンをさらに表示させ、該ボタンが操作された場合に、前記文書データ中の挿入領域を表示することを特徴とする請求項２３に記載の情報処理方法。
【請求項２６】　前記表示工程により表示される選択領域を示す枠は、前記挿入領域に対応するサイズで表示されることを特徴とする請求項２５に記載の情報処理方法。
【請求項２７】　前記表示工程により表示される挿入領域を示す枠を操作することで、前記挿入領域の位置あるいはサイズあるいはその両方を変更する工程をさらに備えることを特徴とする請求項２５に記載の情報処理方法。
【請求項２８】　コンピュータにより実行可能なプログラムを記憶するコンピュータ可読のメモリであって、前記プログラムは、
画像データを挿入する挿入領域を指示する命令を含んだ印刷データを印刷装置へ送信するデータ送信工程と、
前記指示に従って前記印刷装置がスキャナから取り込んだ画像データを該印刷装置から受信する受信工程と、
前記受信工程によって受信された画像データを表示する表示工程と、
前記表示工程によって表示された画像データに基づいて、前記挿入領域に挿入する画像データを指示する画像データ指示工程と、
前記指示工程による結果を前記印刷装置に送信する送信工程とを含むことを特徴とするメモリ。
【請求項２９】　前記受信工程によって取り込まれる画像データは、前記印刷装置によって解像度が下げられた画像データを含むことを特徴とする請求項２８に記載のメモリ。
【請求項３０】　前記受信工程によって取り込まれる画像データは、当該情報処理方法によって解像度を下げら

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れて受信されることを特徴とする請求項２８に記載のメモリ。
【請求項３１】　前記表示工程は、受信した画像データ上に挿入領域に相当するサイズの枠を表示し、前記指示工程による指示に応じて前記枠を移動し、前記送信工程により前記枠の位置及びサイズを、前記挿入領域に挿入する画像データの領域として前記印刷装置に送信することを特徴とする請求項２８に記載のメモリ。
【請求項３２】　コンピュータにより実行可能なプログラムを記憶するコンピュータ可読のメモリであって、前記プログラムは、
文書データに含まれた、画像データを挿入すべき挿入領域の情報に従って、印刷装置を介してスキャナから画像データを読み込む読み込み工程と、
読み込まれた画像データを表示する表示工程と、
前記表示工程によって表示された画像データに基づいて、前記文書データに挿入される画像データの領域を示す選択領域を指示する画像データ指示工程と、
前記文書データ及び前記挿入領域及び前記選択領域に基づいて、前記挿入領域及び前記選択領域の情報を含む、前記印刷装置により解釈可能な印刷データを作成して印刷装置に送信する印刷データ作成工程とを含むことを特徴とするメモリ。
【請求項３３】　前記プログラムは、前記文書データを出力する旨指示された場合に、スキャナから前記画像データを読み出すよう指示するボタンを表示するボタン表示工程をさらに含み、前記ボタンが操作された場合に、前記読み込み工程によって画像データを読み込み、前記表示工程により該画像を表示するとともに、選択領域を表す枠を表示することを特徴とする請求項３２に記載のメモリ。
【請求項３４】　前記ボタン表示工程は、読み込んだ画像データを挿入する前記文書データ中の挿入領域を表示させるボタンをさらに表示させ、該ボタンが操作された場合に、前記文書データ中の挿入領域を表示することを特徴とする請求項３２に記載のメモリ。
【請求項３５】　前記表示工程により表示される選択領域を示す枠は、前記挿入領域に対応するサイズで表示されることを特徴とする請求項３４に記載のメモリ。
【請求項３６】　前記表示工程により表示される挿入領域を示す枠を操作することで、前記挿入領域の位置あるいはサイズあるいはその両方を変更する工程をさらに備えることを特徴とする請求項３４に記載のメモリ。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】本発明は、例えばスキャナ等より読み込んだ画像と印刷データに基づいて作成した画像とを合成して印刷する印刷装置及びそれを制御する情報処理装置とそれらの制御方法に関する。
【０００２】
【従来の技術】従来、スキャナで取り込んだ画像データと、ホストコンピュータから送信されるＰＤＬ（ページ記述言語）等で記述された印刷データとを含む画像を印刷する場合、スキャナからホストコンピュータに一旦画像データを取り込み、その画像データとＰＤＬデータとを合成して、そのデータをプリンタに送信して印刷させる必要があった。
【０００３】
【発明が解決しようとする課題】しかしながら、スキャナとホストコンピュータとがネットワークを介して接続されている場合、スキャナで読み込むデータのサイズが大きいと、ネットワークに高い負荷をかけてしまう。また、ホストコンピュータに画像データを格納するための大量のメモリを必要とし、ホストコンピュータでのデータ処理に時間がかかるなどの問題があった。
【０００４】本発明は、以上の課題を鑑みてなされたものであり、印刷データに含まれる指示に従って画像データを取り込み、その画像データと印刷データとを合成して出力する印刷装置及び該印刷装置に印刷データを送る情報処理装置とそれらの制御方法を提供することを目的とする。
【０００５】さらに、印刷データと合成される画像データのトリムや合成位置に関する指示を印刷データに含めて印刷装置に送信することで、所望の合成のしかたで、印刷データと読み込んだ画像データとを合成できる印刷装置及び該印刷装置に印刷データを送る情報処理装置とそれらの制御方法を提供することを目的とする。
【０００６】
【課題を解決するための手段】上記目的を達成するために、本発明は、ホスト装置からプリンタに送信する印刷データに、スキャナから読み込んだ画像を合成する旨の命令を組み込んでおき、プリンタによりその命令を実行させて、印刷データとスキャナデータとを合成させる。その際に、スキャナから読み込んだ画像を、ホスト装置に転送して、ホスト装置においてプレビュー表示させる。そして、プレビュー表示画面上で、印刷データから形成される画像に組み込むべき領域を操作者に選択させる。
【０００７】また、本発明の達成するための他の構成は次のようなものである。
【０００８】すなわち、外部装置から送信された印刷データ中から、該印刷データと画像データとの合成を指示する命令を検出する検出手段と、前記検出手段によって前記命令が検出されると、画像データを取り込む取り込み手段と、前記取り込み手段によって取り込まれた画像データを前記印刷データに基づいて得られる画像と合成する合成手段とを備える。
【０００９】あるいは、スキャナから画像データを取り入れることが可能な印刷装置と接続された情報処理装置であって、画像データを挿入する挿入領域を指示する命

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令を含んだ印刷データを前記印刷装置へ送信するデータ送信手段と、前記指示に従って前記印刷装置がスキャナから取り込んだ画像データを該印刷装置から受信する受信手段と、前記受信手段によって受信された画像データを表示する表示手段と、前記表示手段によって表示された画像データに基づいて、前記挿入領域に挿入する画像データを指示する画像データ指示手段と、前記指示手段による結果を前記印刷装置に送信する送信手段とを含む。

【００１０】あるいは、スキャナから画像データを取り入れることが可能な印刷装置と接続された、文書データを作成可能な情報処理装置であって、文書データに含まれた、画像データを挿入すべき挿入領域の情報に従って、前記印刷装置を介してスキャナから画像データを読み込む読み込み手段と、読み込まれた画像データを表示する表示手段と、前記表示手段によって表示された画像データに基づいて、前記文書データに挿入される画像データの領域を示す選択領域を指示する画像データ指示手段と、前記文書データ及び前記挿入領域及び前記選択領域に基づいて、前記挿入領域及び前記選択領域の情報を含む、前記印刷装置により解釈可能な印刷データを作成して印刷装置に送信する印刷データ作成手段とを含む。

【００１１】

【発明の実施の形態】［第１の実施形態］以下、図面を参照して本発明の好適な実施の形態を詳細に説明する。

【００１２】図１は、本発明にかかる印刷システムの構成例を示すブロック図である。図１のプリンタ１０００において、Ｉ／Ｏ２０４は、ホストコンピュータ２０１からページ記述言語で記述された印刷データ（以下、ＰＤＬデータ）を受け取る。Ｉ／Ｏ２０７はスキャナ２０２からのデータ（以下、スキャンデータあるいはスキャン画像）を受け取る。ＰＤＬ解析部２０５は、Ｉ／Ｏ２０４が受け取ったＰＤＬデータを基に、ビットマップイメージデータを展開する。メモリ２０６は、展開されたビットマップイメージデータを保存する。スキャナ制御部２０８は、ＰＤＬ解析部２０５の要請に応じてスキャナ２０２からデータを入手し、メモリ２０６にデータを書き込む。印刷を行うに当たっての様々な動作の設定は操作パネル１０１２で行うことができる。それらの設定はホストコンピュータ２０１からダウンロードすることもできる。プリンタエンジン２０９は、作成されたデータを印刷する。

【００１３】また、ホストコンピュータ２０１は、ハードディスク（ＨＤ）２０１ｂやＣＤ－ＲＯＭドライブ２０１ｃなどの媒体を取り外せる外部記憶装置からＲＡＭ２０１ｄにロードされたプログラムを実行する。これにより、ホストコンピュータは、それ自身及び印刷システム全体を制御し、後述するフローチャートで示した手順を実行する。Ｉ／Ｏインターフェース２０１ｅは、プリンタ１０００と通信を行うためのインターフェースである。

【００１４】なお、本実施形態では、プリンタ１０００としてレーザービームプリンタを例にとり説明する。まず、本実施形態を適用するのに好適なレーザービームプリンタの構成を図２を参照して説明する。

【００１５】図２は本実施形態が適用されたレーザビームプリンタ（以下、ＬＢＰという）の構成について示した断面図である。このＬＢＰはデータ源（不図示）から文字パターンの登録や定型書式（フォームデータ）などの登録が行える。なお、本実施形態が適用される印刷装置は、ＬＢＰだけでなく、インクジェット方式等、他の印刷方式の印刷装置でも良い。

【００１６】図２において、ＬＢＰ本体１０００は、それに接続されているホストコンピュータ２０１などの外部装置から供給される文字情報（文字コード）やフォーム情報あるいはマクロ命令などを入力して記憶する。それとともに、それらの情報に従って対応する文字パターンなどを作成し、記録媒体である記録紙上に像を形成する。操作パネル１０１２には操作のためのスイッチおよびＬＥＤ表示等が配され、プリンタ制御ユニット１００１はＬＢＰ本体１０００全体の制御およびホストから供給される文字情報などを解析する。このプリンタ制御ユニット１００１は、主に文字情報を対応する文字パターンのビデオ信号に変換し、レーザドライバ１００２に出力する。レーザドライバ１００２は半導体レーザ１００３を駆動するための回路であり、入力されたビデオ信号に応じて半導体レーザ１００３から発射されるレーザ光１００４のオン・オフを切り換える。レーザ光１００４は回転多面鏡１００５で、左右方向に振られて静電ドラム１００６上を操作露光する。これにより、静電ドラム１００６上には文字パターンの静電潜像が形成される。この潜像は、静電ドラム１００６周囲に配設された現像ユニット１００７により現像され、その後、記録紙に転写される。この記録紙にはカットシートが用いられ、カットシート記録紙はＬＢＰ１０００に装着された用紙カセット１００８に収納され、給紙ローラ１００９および搬送ローラ１０１０と搬送ローラ１０１１とにより装置内に取り込まれて、静電ドラム１００６に供給される。

【００１７】図３は、本実施形態における動作手順フローチャートであり、特にスキャンデータとＰＤＬデータとを合成して印刷する動作手順を示すフローチャートである。図２及び図３を参照しながら、印刷システムの動作を説明する。

【００１８】ホストコンピュータで文書の編集などが終了し、作成された文書等の印刷が指示されると、まずホストコンピュータ２０１において、作成された文書データをプリンタ１０００で解釈可能なＰＤＬデータに変換する。その後、スキャンデータの組込みの指示がされているページがあるか判定し、もしあれば、あらかじめ定められたスキャンデータの取り込み要求の命令を、ステ

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ッフＳ８０１で作成したＰＤＬデータ中に、指定されたページに対応づけて組み込んでおく。最後に、作成したＰＤＬデータをプリンタ１０００に送信する。このデータを受信したプリンタは、図３の手順で動作する。ホストコンピュータ２０１がプリンタ１０００に印字データを送信すると、Ｉ／Ｏ２０４が受信し（ステップＳ３０１）、ＰＤＬ解析部２０５で受信した印字データの解析等の処理を行なう（ステップＳ３０２）。ＰＤＬ解析部２０５は、印字データがスキャナ２０２からデータを取り込む指示か否かを判断する（ステップＳ３０３）。直前に展開されたページに対してスキャンデータを合成するための命令がＰＤＬデータ中に検出されると、スキャナ制御部２０８に対して、指定の解像度（ＰＤＬデータ中で指定されている）、あるいは一番近い解像度でデータを読み込むように指示する。これに応じて、スキャナ制御部２０８はＩ／Ｏ２０７を通してスキャナ２０２からデータを取り込み（ステップＳ３０６）、取り込んだデータをメモリ２０６に展開する（ステップＳ３０７）。

【００１９】ステップＳ３０７の後、あるいはステップＳ３０３でスキャナ２０２からデータを取り込む指示が無いと判断した場合には、ＰＤＬデータに基づいた画像データを、メモリ２０６に展開する（ステップＳ３０４）。この際、メモリ２０６にすでに展開されている画像が背景となるように、ＰＤＬデータから生成した画像を重ねていく。

【００２０】以上の処理を終えた段階で１ページ分のデータが揃ったか否かを判断し（ステップＳ３０５）、揃っていなければステップＳ３０１から処理を再開し、揃っていれば印刷を行なう（ステップＳ３０８）。

【００２１】なお、ステップＳ３０７におけるスキャナデータの展開においては、スキャナデータに対しては、トリムやマスク、あるいは変倍といった処理は施されず、読み込まれたデータがそのままＰＤＬデータから展開された画像データに合成される。

【００２２】以上説明したように、本実施形態の印刷装置は、ホストコンピュータから送られてくるＰＤＬデータに従って、スキャンデータを自動的に読み込み、印刷装置内でＰＤＬデータとスキャンデータを合成することができる。したがって、スキャナからホストコンピュータにスキャンデータを転送する必要も、ホストコンピュータからプリンタにスキャンデータを転送する必要もない。このため、スキャナ２０２やプリンタ１０００との間の通信トラフィックを減らすことができる。これにより、ホストコンピュータが、ローカルエリアネットワークなど、他のホストコンピュータや周辺機器と共有される通信網を介してプリンタに接続されている場合には特に、ネットワークやプリンタを使用する際の競合を防止できる。

【００２３】また、画像の合成をホストコンピュータで行う必要がないため、ホストコンピュータを有効に利用することができる。

【００２４】また、ＰＤＬ命令の一部として、スキャンデータを合成する命令がプリンタ与えられるために、所望のページに対してスキャンデータの合成を指示できる。

【００２５】［第２の実施形態］第１の実施形態では、スキャナから取り込んだデータをＰＤＬデータから展開したデータに単に合成する例を示した。本実施形態では、スキャンデータを組み込む箇所を、ＰＤＬデータによって指定しておく。

【００２６】図４は、第１の実施形態と第２の実施形態との違いを説明するための図である。スキャンデータ４００とＰＤＬデータ４０５とを合成して印刷する場合、第１の実施形態にしたがってデータの合成を行うと、合成データ４１０のように、スキャンデータ４００を背景にしてその上にＰＤＬデータ４０５が重ねられた画像データが作成される。したがって、第１の実施形態においては、スキャンデータ中には、ＰＤＬデータとの合成に不要なデータ（図４ではスキャンデータ４００中の領域４０１以外の部分）があってはならない。

【００２７】一方、本実施形態では、ＰＤＬデータから展開した画像データにスキャンデータ４０５を挿入する挿入領域４０６を、ＰＤＬデータによって指定しておく。プリンタにおいては、挿入領域４０６に対応するスキャンデータの領域である選択領域４０１がメモリ２０６に展開され、その上からＰＤＬデータ４０５が書き込まれて合成データ４１２が作成される。

【００２８】図５は、上述のように画像を形成するためのプリンタによる処理手順である。

【００２９】ホストコンピュータ２０１がプリンタ１０００に印字データを送信すると、Ｉ／Ｏ２０４が受信し（ステップＳ４０１）、ＰＤＬ解析部２０５で受信した印字データの解析等の処理を行なう（ステップＳ４０２）。ＰＤＬ解析部２０５は、印字データがスキャナ２０２からデータを取り込む指示か否かを判断する（ステップＳ４０３）。直前に展開されたページに対してスキャンデータを合成するための命令がＰＤＬデータ中に検出されると、スキャナ制御部２０８に対して、指定の解像度（ＰＤＬデータ中で指定されている）、あるいは一番近い解像度でデータを読み込むように指示する。また、前記合成するための命令と関連づけられてＰＤＬデータに含まれる、合成されるスキャンデータの領域を特定するための位置（ｄｘ，ｄｙ）及びサイズｘ＊ｙを、スキャナ制御部２０８に指示する（ステップＳ４０６）。スキャナ制御部２０８はＩ／Ｏ２０７を通してスキャナ２０２から指定した領域のデータを取り込み（ステップＳ４０７）、取り込んだデータをメモリ２０６に展開する（ステップＳ４０８）。ここで、スキャンされたデータから指定された領域を切り取ってメモリに展開しても

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良いし、スキャナが機構的に可能であれば、指定された領域だけスキャンしても良い。

【００３０】図６は、スキャンデータ５０１と、ＰＤＬデータ５０２とが合成された画像の例を示している。図６において、挿入領域５０３が、その位置を表す左上角の座標（ｄｘ，ｄｙ）と、そのサイズを表す横の長さｘ及び縦の長さｙとにより指定される。スキャンデータ５０１からは、その挿入領域５０３に対応する選択領域５０４が切り取られ、ＰＤＬデータ５０２に合成される。

【００３１】ステップＳ４０８の後、あるいはステップＳ４０３でスキャナ２０２からデータを取り込む指示が無いと判断した場合には、ＰＤＬデータに基づいた画像データを、メモリ２０６に展開する（ステップＳ４０４）。この際、メモリ２０６にすでに展開されているスキャンデータが背景となるように、ＰＤＬデータから生成した画像を重ねていく。

【００３２】以上の処理を終えた段階で１ページ分のデータがそろったか否かを判断し（ステップＳ４０５）、そろっていなければステップＳ３０１から処理を再開し、そろっていれば印刷を行なう（ステップＳ４０９）。

【００３３】以上説明したように、本実施形態を用いれば、第１の実施形態と同様の効果が得られる。それに加えて、挿入領域がＰＤＬデータによって正確に指示されるので、データ合成には不必要な画像がスキャンデータに含まれていても、必要なスキャンデータのみがＰＤＬデータと合成される。

【００３４】［第３の実施形態］第１及び第２の実施形態では、スキャンデータはＬＢＰ１０００に送信されていたが、ＬＢＰ１０００が受信したスキャンデータをホストコンピュータへ送信して、ホストコンピュータ上でスキャンデータの概略がプレビューできるように構成することもできる。さらに、ホストコンピュータ２０１上でプレビューされたスキャンデータを基に、予めＰＤＬデータ中に指定されているスキャンデータを挿入する挿入領域毎に、どのスキャンデータを割り当てるのか指示することもできる。

【００３５】図７は、本実施形態が適用された印刷システムの構成例を示すブロック図である。なお、第１及び第２の実施形態における図１と同一の機能を有するブロックには同一の参照符号を付してある。Ｉ／Ｏ５０７は、スキャナ２０２からデータを受け取ると、スキャナ制御部２０８とホストコンピュータ２０１の両方にデータを送る。ホストコンピュータ２０１は、受信したスキャンデータからドットを間引き、プレビュー機能によってホストコンピュータの画面上にスキャンデータを表示する。あるいは、Ｉ／Ｏ５０７がホストコンピュータの表示機能に応じてスキャンデータからドットを間引き、ホストコンピュータに送信しても良い。

【００３６】図８は、本実施形態におけるＬＢＰ１０００とホストコンピュータ２０１それぞれの動作手順を示すフローチャートである。ＬＢＰ１０００での手順をステップＳ６００～ステップＳ６１３で示し、ホストコンピュータ２０１での手順をステップＳ６５０～ステップＳ６５３で示す。

【００３７】最初にＬＰＢ１０００内での動作手順について説明する。ホストコンピュータ２０１から送信されたＰＤＬデータをＬＢＰ１０００がＩ／Ｏ２０４で受信すると（ステップＳ６００）、ＰＤＬ解析部２０５でＰＤＬデータの処理を行ない（ステップＳ６０１）、ＰＤＬデータをメモリ２０６上に展開する（ステップＳ６０２）。

【００３８】ＰＤＬ解析部２０５は、展開したデータとスキャンデータとの合成を指示する命令を検出すると（ステップＳ６０３のＹＥＳ）、スキャナ制御部２０８にスキャナ２０２のデータの取り込みを指示する。取り込みを指示されたスキャナ制御部２０８は、Ｉ／Ｏ５０７を通してスキャンデータを取り込む（ステップＳ６１０）。スキャンデータを取り込むときの解像度は、すでにＰＤＬ解析部２０５で指定された値とし、もし、指定された解像度で取り込めないときは、指定された解像度に一番近い解像度で行う。同時に、取り込まれたスキャンデータはＩ／Ｏ５０７からホストコンピュータ２０１へも送信される（ステップＳ６１１）。このとき、プレビュー機能の表示解像度に合わせてスキャンデータの解像度を下げてから送信するようにすると、送信データのデータ量を減らすことができる。図６中のステップＳ６１１からステップＳ６５０の前に向かっている点線の矢印は、ステップＳ６１０で取り込まれたスキャンデータが送信されていることを示す。

【００３９】その後、スキャナ制御部２０８は、ＰＤＬデータによって割り当てられた挿入領域に、スキャンデータにおける選択領域の位置を示す情報を、ホストコンピュータ２０１から受信する（ステップＳ６１２）。ステップＳ６０２でメモリ２０６に展開されたＰＤＬデータに基づく画像の挿入領域に、スキャンデータにおいて指示された選択領域の内容を書き込んで、ＰＤＬデータとスキャンデータの合成を行う（ステップＳ６１３）。

【００４０】一方、ステップＳ６０３で、スキャナ２０２からデータを取り込む指示が検出されたなかった場合は、ステップＳ６０４へすすむ。

【００４１】ステップＳ６０４では、１ページ分のデータがそろったか否かを判断し、そろっていなければステップＳ６００から処理を再開し、そろっていればステップＳ６０５へすすみ、印刷を行なう。

【００４２】次にホストコンピュータ２０１での動作手順について説明する。ホストコンピュータ２０１は、ＬＢＰ１０００のステップＳ６１１により送信された、間引きされたスキャンデータを受信し（ステップＳ６５０）、受信したデータを画面表示する（ステップＳ６５

１）。この表示画面上で、オペレータによりスキャンデータの選択領域が指示される。この指示に従い、ＰＤＬデータの挿入領域毎にスキャンデータの選択領域が割り当てられる（ステップＳ６５２）。これらの結果をＬＢＰ１０００へ通知する（ステップＳ６５３）。図６中のステップＳ６５３からステップＳ６１２の前に向かっている点線の矢印は、ステップＳ６５２で割り当てられた結果がＬＢＰ１０００に送信されていることを示す。

【００４３】なお、スキャンデータの挿入領域はＰＤＬデータ中であらかじめ指定されているため、ステップＳ６１１では、スキャンデータとともに、挿入領域の識別子と、それぞれのサイズをホストコンピュータに送信してもよい。

【００４４】図９は、ホストコンピュータにおけるプレビュー画面の例である。ホストコンピュータでは、プレビュー画面６０７上に、プリンタから受信した挿入領域のサイズに相当する枠６１０を表示する。そして、オペレータは、移動ボタン６１１を操作してこの枠６１０を移動し、ＰＤＬデータに合成される選択領域を指定する。

【００４５】また、ＰＤＬデータ中で指定されている挿入領域が複数箇所あることもあり得る。この場合には、ステップＳ６５２では、挿入領域の識別子とスキャンデータの選択領域とを対応づけて割り当て、その結果をプリンタ１０００に送信する。

【００４６】以上説明したように、本実施形態を用いれば、利用者の望むスキャンデータの領域とＰＤＬデータとの合成及び印刷が行える。また、スキャンデータの領域の指定は、ＰＤＬデータで指定された領域に相当するサイズの枠をプレビュー画面上で移動することで行わる。このため、所望の領域の指定が非常に簡単に行える。

【００４７】なお、ステップＳ６１１で、解像度を下げずにスキャンデータをホストコンピュータ２０１へ送信し、ステップＳ６５０で、ホストコンピュータ２０１が解像度を下げてスキャンデータを受信するように構成することもできる。

【００４８】［第４の実施形態］第２の実施の形態では、ＰＤＬで指定した挿入領域の位置と、そこに合成されるスキャナデータの選択領域の位置とは対応していた。また、第３の実施の形態では、ＰＤＬで指定した挿入領域のサイズは、合成されるスキャナデータの選択領域のサイズに対応していた。本実施の形態では、ホストコンピュータ２０１にスキャナ２０２のデータをプレビューする機能に加えて、ＰＤＬデータにおける挿入領域の位置とサイズも、オペレータに指定させる。これらの指定が済んでから、ホストコンピュータ２０１はＰＤＬデータを作成し、プリンタ１０００に送信する。本実施形態のシステムは、図７に示した構成と同様である。

【００４９】図７及び図１０～図１５を参照しながら、本実施形態を説明する。

【００５０】まず、ホストコンピュータ２０１上での処理を、図１０のフローチャートにしたがって説明する。利用者は、所定のアプリケーションプログラムを利用して、文書等を作成する。この文書の所望のページに、利用者は、スキャンデータを挿入したい旨の命令及び挿入領域のサイズ及び位置を付け加えておく。この操作は、文書を作成するアプリケーションに依存する。

【００５１】印字要求が出されるとプリンタドライバが起動される。図１０の手順は、これ以降のプリンタドライバの動作を示している。まず、プリンタドライバは、作成された文書データ中にスキャンデータ合成命令があるか否かを判断する（ステップＳ１００１）。無いと判断した場合には、図１１に示した画面（プリンタドライバウインドウと呼ぶ）を、スキャンデータ挿入位置ボタン６０３及びスキャンデータプレビューボタン６０４といった、スキャン関連のボタンを選択不可能にして、プリンタドライバウインドウ６０２をホストコンピュータ２０１のモニタ６０１に表示する（ステップＳ１００２）。

【００５２】一方、スキャンデータの合成命令が検出された場合には、前述のスキャン関連ボタンを選択可能として、プリンタドライバウインドウ６０２を表示する（ステップＳ１００３）。

【００５３】この後、オペレータが、表示されたウインドウ内のいずれかのボタンを操作するまで待つ（ステップＳ１００４）。いずれかのボタンが押されると、ステップＳ１００５に進んで、どのボタンが押されたのか判定する。

【００５４】スキャンデータプレビューボタン６０４が押された場合、ステップＳ１００６に進む。まず、スキャナ２０２に対して、原稿画像の読み込みを要求し、スキャナがそれに応えて読み、送信した画像データを受信する（ステップＳ１００６）。プリンタドライバは受信した画像データを図１２のプレビューウインドウ６０７として表示する（ステップＳ１００７）。オペレータはこの画面を見て枠移動ボタン６１１などを利用して操作を行う。この操作に従って、選択領域を示す選択枠６１０を移動させ、その位置を記録するとともに表示する（ステップＳ１００８）。

【００５５】スキャンデータ挿入位置ボタン６０３が押された場合、挿入位置ウインドウ６０６が表示される（ステップＳ１００９）。このウインドウにおいて、枠６０９は、作成済みの文書データに設定された、スキャンデータの合成箇所に基づいて表示される。

【００５６】印刷プレビューボタン６０５が押された場合には、不図示の印刷プレビューウインドウを表示する（ステップＳ１０１１）。ただし、、挿入領域の中にはなにも表示しない。そして、表示されているページについて、スキャンデータのプレビューが行われたか判定す

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る（ステップＳ１０１２）。行われたなら、ステップＳ１００６においてスキャナから受信した画像データから、ステップＳ１００８で設定された選択枠の内部を切り出し、それを挿入領域に合成して表示する（ステップＳ１０１３）。

【００５７】また、印刷ボタン６０５が押された場合には、その時点で作成済みの文書データと、設定されている挿入領域の位置及びサイズと、それに対応する選択領域の位置及びサイズとをＰＤＬデータに変換して、プリンタ１０００に送信する（ステップＳ１０１４）。

【００５８】図１３は、図１０のステップＳ１００６により、画像データの読み込みを要求されたプリンタ１０００の動作のフローチャートである。まず、スキャナ２０２によって、原稿画像をスキャンさせる（ステップＳ１３０１）。そして、得られた画像データをメモリ２０６に保存し（ステップＳ１３０２）、その画像データを指定された解像度でホストコンピュータ２０１に送信する（ステップＳ１３０４）。

【００５９】図１４は、図１０のステップＳ１０１４の後で送信されるＰＤＬデータを受信したプリンタ１０００による動作を示す。

【００６０】ＰＤＬデータを受信すると（ステップＳ１４０１）、そのデータを解析するなどの処理を行う（ステップＳ１４０２）。そして、そのＰＤＬデータの中にスキャナデータの合成を指示する命令が含まれているか判定する（ステップＳ１４０３）。含まれている場合には、ＰＤＬデータから、スキャンデータの選択領域を示す位置（ｄｘ１，ｄｙ１）と、サイズｘ*ｙとを得る（ステップＳ１４０７）。そして、位置（ｄｘ１，ｄｙ１），サイズｘ*ｙの選択領域に相当するスキャンデータを読む（ステップＳ１４０８）。この際、すでにプレビュー表示のためにスキャンデータが読まれているなら、改めてスキャンを行わない。この場合には、図１３のステップＳ１３０２で保存されたデータから、設定されている選択領域を切り出す。プレビューが行われていないなら、ここでスキャンを行って原稿画像を読みとる。

【００６１】読みとられたスキャンデータの選択領域を、設定された挿入領域の位置（ｄｘ２，ｄｙ２）に展開する（ステップＳ１４０９）。

【００６２】ステップＳ１４０３においてスキャンデータの合成の指示がないと判断された場合、あるいはステップＳ１４０９の後には、ＰＤＬデータを基に、メモリ２０６にドットイメージデータに展開する（ステップＳ１４０５）。このとき、すでにメモリ２０６にあるデータを背景にするように、ドットイメージデータは展開される。そのため、ステップＳ１４０９でスキャンデータがすでにメモリ２０６に格納されているなら、それを背景にしてイメージが合成される。こうして１ページのデータが得られると（ステップＳ１４０６－ＹＥＳ），ステップＳ１４１０において、印刷が実行される。

【００６３】図１５は、上述の手順で合成されるスキャナデータとＰＤＬデータの一例を示す図である。図１５では、スキャンで読み込まれたデータ９０１上で設定された選択領域内の画像が、ＰＤＬデータ９０２の挿入領域に合成されている。

【００６４】以上のようにして、ホストコンピュータの画面上で、スキャンデータ中に選択領域を自由に設定することができる。この設定は、スキャンデータのプレビューを見ながら行えるために、利用者の望む部分画像を正確に選択し、選択された部分を、ＰＤＬデータにより表された文書等の画像に合成することができる。このため、スキャンされる原稿画像中における選択領域を、最終的に出力しようとする印刷物におけるスキャンデータの挿入領域に、あらかじめ正確に位置あわせしておく必要がない。また、合成はプリンタにおいて行われるため、ホストコンピュータにおける処理負荷が軽減できる。

【００６５】さらに、スキャンデータのプレビュー表示を行う場合には、スキャナからホストコンピュータへと画像データを転送する必要がある。この場合に転送される画像データは表示画面に応じて間引きした画像データで十分である。また、ホストコンピュータからプリンタへとスキャンデータを送信する必要はない。このため、ネットワーク上に送り出される画像データは小さなデータであり、通信のトラフィックを増やすことはない。

【００６６】なお、図１０のステップＳ１００９の後で、挿入領域を示す挿入枠６０９を移動したり、あるいはそのサイズを変更したり、あるいは追加したりといった操作ができるようにしてもよい。その場合には、挿入枠の移動や追加に伴って、ステップＳ１０１４で作成されるＰＤＬデータにも、それら操作に応じた命令が付け加えられる。また、挿入枠６０９のサイズが変更された場合には、選択枠６１０のサイズもそれに応じて変更される。

【００６７】［第５の実施形態］第３，第４の実施形態では、プリンタドライバウインドウ６０２が起動される前のＰＤＬデータ作成時にスキャンするか否かが決定されていたが、プリンタドライバウインドウ６０２を起動後にスキャンデータを合成できるようにすることもできる。

【００６８】図１７を参照しながら、図１６のフローチャートにしたがって、本実施形態における選択領域の設定手順を説明する。なお、システムの構成は、第１乃至第４の実施の形態と同様である。

【００６９】まず、ホストコンピュータ２０１上での処理を、図１６のフローチャートにしたがって説明する。プリンタにおける処理は、第４実施形態の図１３，図１４と同様である。利用者は、所定のアプリケーションプログラムを利用して、文書等を作成する。この文書の所

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望のページに、利用者は、スキャンデータを挿入したい旨の命令及び挿入領域のサイズ及び位置を付け加えておく。この操作は、文書を作成するアプリケーションに依存する。

【００７０】印字要求が出されるとプリンタドライバが起動される。図１６の手順は、これ以降のプリンタドライバの動作を示している。まず、プリンタドライバは、図１７に示した画面のうち、プリンタドライバウインドウ６０２をスキャンデータ取り込みボタン１０００１を選択可能な状態にして表示する（ステップＳ１６０１）。

【００７１】この後、オペレータが、表示された画面内のいずれかのボタンを操作するまで待つ（ステップＳ１６０２）。いずれかのボタンが押されると、ステップＳ１６０３に進んで、どのボタンが押されたのか判定する。

【００７２】スキャンデータ取り込みボタン６０４が押された場合、ステップＳ１６０４に進む。まず、スキャナ２０２に対して、原稿画像の読み込みを要求し、スキャナがそれに応えて読み、送信した画像データを受信する（ステップＳ１６０４）。プリンタドライバは受信した画像データを図１７のプレビューウインドウ６０７として表示する（ステップＳ１６０５）。オペレータはこの画面を見て枠移動ボタン６１１などを利用して操作を行う。この操作に従って、選択領域を示す選択枠６１０を移動させ、その位置を記録するとともに表示する（ステップＳ１６０６）。

【００７３】スキャンデータ挿入位置ボタン６０３（図１７では隠されている）が押された場合、挿入位置ウインドウ６０６が表示される（ステップＳ１６０７）。この画面において、挿入枠６０９は、作成済みの文書データに設定された、スキャンデータの合成箇所に基づいて表示される。

【００７４】印刷プレビューボタン６０５が押された場合には、不図示の印刷プレビュー画面を表示する（ステップＳ１６０９）。ただし、、挿入領域の中にはなにも表示しない。そして、表示されているページについて、スキャンデータのプレビューが行われたか判定する（ステップＳ１６１０）。行われたなら、ステップＳ１６０４においてスキャナから受信した画像データから、ステップＳ１６０６で設定された選択枠の内部を切り出し、それを挿入領域に合成して表示する（ステップＳ１６１１）。

【００７５】また、印刷ボタン６０５が押された場合には、その時点で作成済みの文書データと、設定されている挿入領域の位置及びサイズと、それに対応する選択領域の位置及びサイズとをＰＤＬデータに変換して、プリンタ１０００に送信する（ステップＳ１６１２）。

【００７６】なお、スキャンデータ取り込みボタンが押されなかった場合には、文書データ中で定義されているスキャンデータの挿入領域に対応する位置及びサイズの領域を選択領域とするよう、ＰＤＬデータを生成する。

【００７７】以上の手順により、第４の実施形態と同じ作用効果を得られる。さらに、オペレータが選択領域を改めて選択しなくとも、選択領域として、挿入領域に対応するスキャンデータ上の領域が選ばれる。このため、オペレータは、選択領域の位置の決定を省くことができる。

【００７８】［第６の実施形態］また、第３，第４の実施形態において、挿入領域と割り当てられたスキャンデータの領域（以下、割り当て領域）との大きさを比較する比較手段を設け、比較手段によって領域の大きさが異なると判断された場合、領域の大きさが異なることを知らせる警告メッセージを出したり、エラーで処理を中止したり、割り当て領域を自動で拡大縮小して挿入領域に合わせることができる機能を設けてもよい。このとき、警告やエラーメッセージを出すか、それとも、自動的に拡大／縮小を行うかの切換えは、操作パネル１０１２やホストコンピュータから設定できる。

【００７９】第３及び第４の実施形態では、選択領域のサイズは挿入領域のサイズに応じて決定され、オペレータが変更することはできなかった。しかしながら、本実施形態では、図１０のステップＳ１００８及び図１６のステップＳ１６０６において、選択領域の位置のみならず、サイズも変更できる。図１８にサイズが自動的に変更された例を示す。図１８の場合、スキャンデータ上の選択領域は画像１８０１全体である。これに対して、ＰＤＬデータ１８０２上で定義された挿入領域１８０３は、それよりも小さい領域である。この場合には、画像１８０１は縮小されて、挿入領域１８０３に合成される。そのために、図１０のステップＳ１０１４及び図１６のステップＳ１６１２では、ＰＤＬデータ中に、スキャンデータの選択領域内の画像を、挿入領域のサイズに合わせて拡大／縮小させる命令も組み込んでおく。プリンタ１０００はこの命令を解釈して、スキャンデータを拡大／縮小し、ＰＤＬデータと合成する。

【００８０】以上説明したように、本実施形態を用いれば、印刷する前に、ユーザが合成に用いるスキャンデータとＰＤＬデータの領域が異なっていることをエラーや警告メッセージによって知ることができ、適切な処置をとることができる。

【００８１】また、自動的にスキャンデータの拡大縮小をして、選択領域内の画像を挿入領域のサイズに合わせることもできるので、スキャンデータを前もって拡大したり縮小したりする必要がなくなる。

【００８２】［各種変形例］上記各実施形態では、スキャナの解像度はＰＤＬ１０００で予め設定されていたが、スキャナ制御部２０８が操作パネル１０１２にプリンタの解像度を問い合わせ、その結果入力された解像度でスキャナ２０２からデータを取り込むようにすること

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もできる。得られた解像度で行えない場合は、それに一番近い解像度で、スキャナ２０２からデータを取り込むようにする。

【００８３】また、上記各実施形態では、ＰＤＬデータ中に挿入領域が予め指定されていたが、指定されたＰＤＬデータ中にすでに何らかのデータが存在する場合も考えられる。このようなときは、ＰＤＬデータを優先するか、あるいはスキャンデータを優先するか、という２つの方法から、いずれかを操作パネル１０１２あるいはホストコンピュータ２０１で指定できるようにしてもよい。

【００８４】図１９は本実施形態に従って合成されるデータを例示した図である。スキャナデータ１９０１中の選択領域１９０１ａを、ＰＤＬデータ１９０２中の挿入領域１９０２ａと合成する場合を考える。この場合には、スキャンデータ優先、すなわち、ＰＤＬデータを先にドットイメージデータとして展開し、その上にスキャンデータを重ねるため、画像１９０３のようになる。こうするためには、図１４でいえば、ステップＳ１４０５のＰＤＬデータの展開をステップＳ１４０９の後に行わず、ステップＳ１４０２とステップＳ１４０３との間に行うようにすればよい。

【００８５】また、上記第３及び第４の実施の形態は、ＰＤＬデータを優先するように考えられているため、ＰＤＬデータを優先する場合には、図１４のように、スキャンデータの展開の後に、ＰＤＬデータの展開を行えばよい。

【００８６】また、これらを切り替えるためには、オペレータの操作やホストコンピュータからの指示に応じて値を変えるフラグを設け、そのフラグの値が１であれば、図１４の通りに処理を行い、０であれば、ステップＳ１４０５のＰＤＬデータの展開をステップＳ１４０９の後に行わず、ステップＳ１４０２とステップＳ１４０３との間に行うようにすればよい。

【００８７】さらに、いずれかを優先させず、重複する画像をかさねてしまうこともできる。図２０は、ＰＤＬデータ７００とスキャンデータ７０５とを合成する例を示す図である。スキャンデータを優先すれば画像７２０のように、ＰＤＬデータの挿入領域７０１にすでにある画像が出力される。ＰＤＬデータを優先すれば画像７１０のように、スキャンデータの選択領域７０６内の画像が出力される。合成を選択すれば、画像７３０のように、双方の画像が重ね合わされて出力される。この最後の方法では、２つの画像を重ね合わせるための演算を利用者に指定させることもできる。例えば、対応する各画素の値を加算したり、２値画像であれば、論理和や排他的論理和などを選ぶことができる。このようにすることで、スキャンデータを挿入するＰＤＬデータの領域にすでにＰＤＬデータがある場合でも、印刷装置上で調整できる。

【００８８】また、上述の実施形態では、スキャンデータとＰＤＬデータとの合成について説明してきたが、合成されるデータがスキャンデータ以外の画像データであっても、本実施形態を適用することができる。

【００８９】また、上述した実施形態は、すべてプリンタとスキャナとが独立したシステムであった。しかし、スキャナとプリンタとを含み、複写機やファクシミリ、あるいはスキャナ，プリンタ単体として使用できるデジタル複合機をホストコンピュータと接続したシステムに、上記各実施例で説明した画像合成の技術を適用することができる。

【００９０】

【他の実施形態】なお、本発明は、複数の機器（例えばホストコンピュータ，インタフェイス機器，リーダ，プリンタなど）から構成されるシステムに適用しても、一つの機器からなる装置（例えば、複写機，ファクシミリ装置など）に適用してもよい。

【００９１】また、本発明の目的は、前述した実施形態の機能を実現するソフトウェアのプログラムコードを記録した記憶媒体を、システムあるいは装置に供給し、そのシステムあるいは装置のコンピュータ（またはＣＰＵやＭＰＵ）が記憶媒体に格納されたプログラムコードを読出し実行することによっても達成される。

【００９２】この場合、記憶媒体から読出されたプログラムコード自体が前述した実施形態の機能を実現することになり、そのプログラムコードを記憶した記憶媒体は本発明を構成することになる。

【００９３】プログラムコードを供給するための記憶媒体としては、例えば、フロッピディスク，ハードディスク，光ディスク，光磁気ディスク，ＣＤ－ＲＯＭ，ＣＤ－Ｒ，磁気テープ，不揮発性のメモリカード，ＲＯＭなどを用いることができる。

【００９４】また、コンピュータが読出したプログラムコードを実行することにより、前述した実施形態の機能が実現されるだけでなく、そのプログラムコードの指示に基づき、コンピュータ上で稼働しているＯＳ（オペレーティングシステム）などが実際の処理の一部または全部を行い、その処理によって前述した実施形態の機能が実現される場合も含まれる。

【００９５】さらに、記憶媒体から読出されたプログラムコードが、コンピュータに挿入された機能拡張ボードやコンピュータに接続された機能拡張ユニットに備わるメモリに書込まれた後、そのプログラムコードの指示に基づき、その機能拡張ボードや機能拡張ユニットに備わるＣＰＵなどが実際の処理の一部または全部を行い、その処理によって前述した実施形態の機能が実現される場合も含まれる。

【００９６】

【発明の効果】以上説明したように、本発明によれば、ＰＤＬデータに従って、スキャンデータを自動的に読み

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込み、印刷装置内でＰＤＬデータとスキャンデータを合成することができる。したがって、スキャナからホストコンピュータにスキャンデータを転送する必要も、ホストコンピュータからプリンタにスキャンデータを転送する必要もない。このため、ネットワーク上のの通信トラフィックを減らすことができる。

【００９７】また、画像の合成をホストコンピュータで行う必要がないため、ホストコンピュータを有効に利用することができる。

【００９８】また、ＰＤＬ命令の一部として、スキャンデータを合成する命令がプリンタ与えられるために、所望のページに対してスキャンデータの合成を指示できる。

【００９９】また、挿入領域がＰＤＬデータによって正確に指示されるので、データ合成には不必要な画像がスキャンデータに含まれていても、必要なスキャンデータのみがＰＤＬデータと合成される。

【０１００】また、利用者の望むスキャンデータの領域とＰＤＬデータとの合成及び印刷が行える。また、スキャンデータの領域の指定は、ＰＤＬデータで指定された領域に相当するサイズの枠をプレビュー画面上で移動することで行わる。このため、所望の領域の指定が非常に簡単に行える。

【０１０１】また、ホストコンピュータの画面上で、スキャンデータ中に選択領域を自由に設定することができる。この設定は、スキャンデータのプレビューを見ながら行えるために、利用者の望む部分画像を正確に選択し、選択された部分を、ＰＤＬデータにより表された文書等の画像に合成することができる。

【０１０２】また、スキャンデータのプレビューを行う場合であっても、ホストコンピュータからプリンタへとスキャンデータを送信する必要はないため、ネットワーク上に送り出される画像データは小さなデータであり、通信のトラフィックを増やすことはない。

【０１０３】さらに、オペレータが選択領域を改めて選択しなくとも、選択領域として、挿入領域に対応するスキャンデータ上の領域が選ばれる。このため、オペレータは、選択領域の位置の決定を省くことができる。

【０１０４】また、印刷する前に、ユーザが合成に用いるスキャンデータとＰＤＬデータの領域が異なっていることをエラーや警告メッセージによって知ることができ、適切な処置をとることができる。

【０１０５】また、自動的にスキャンデータの拡大縮小をして、選択領域内の画像を挿入領域のサイズに合わせることもできるので、スキャンデータを前もって拡大したり縮小したりする必要がなくなる。

【図面の簡単な説明】

【図１】第１乃至第２の実施形態における印刷システムの構成例を示すブロック図である。

【図２】レーザビームプリンタ１０００の断面図である。

【図３】第１の実施形態によるプリンタの動作手順を示すフローチャートである。

【図４】第１の実施形態及び第２の実施形態それぞれにおいて合成された画像の例である。

【図５】第２実施形態によるプリンタの動作手順を示すフローチャートである。

【図６】第２実施形態のプリンタによる画像合成の様子を示す図である。

【図７】第３乃至第６の実施形態における印刷システムの構成例を示すブロック図である。

【図８】第３の実施形態におけるＬＢＰ１０００とホストコンピュータ２０１での動作手順を示すフローチャートである。

【図９】第３の実施形態でホストコンピュータに表示されるスキャナデータのプレビューウインドウの図である。

【図１０】第４の実施形態によるホストコンピュータの動作手順を示すフローチャートである。

【図１１】第４及び第５の実施形態でホストコンピュータに表示されるプリンタドライバウインドウの図である。

【図１２】第４の実施形態でホストコンピュータに表示される画面の図である。

【図１３】第４及び第５の実施形態におけるプリンタによるプレビュー画面の読み込み手順を示すフローチャートである。

【図１４】第４及び第５の実施形態におけるプリンタの動作手順のフローチャートである。

【図１５】第４及び第５の実施形態において、合成される画像の例を示す図である。

【図１６】第５の実施形態によるホストコンピュータの動作手順を示すフローチャートである。

【図１７】第５の実施形態でホストコンピュータに表示される画面の図である。

【図１８】第６の実施形態において合成される画像の例を示す図である。

【図１９】合成する画像に優先順位をつけた場合の画像の例を示す図である。

【図２０】合成する画像に優先順位をつけた場合の画像の例を示す図である。

２０１　ホストコンピュータ
２０２　スキャナ
２０４　Ｉ／Ｏ
２０５　ＰＤＬ解析部
２０６　メモリ
２０７　Ｉ／Ｏ
２０８　スキャナ制御部
２０９　エンジン
５０７　Ｉ／Ｏ

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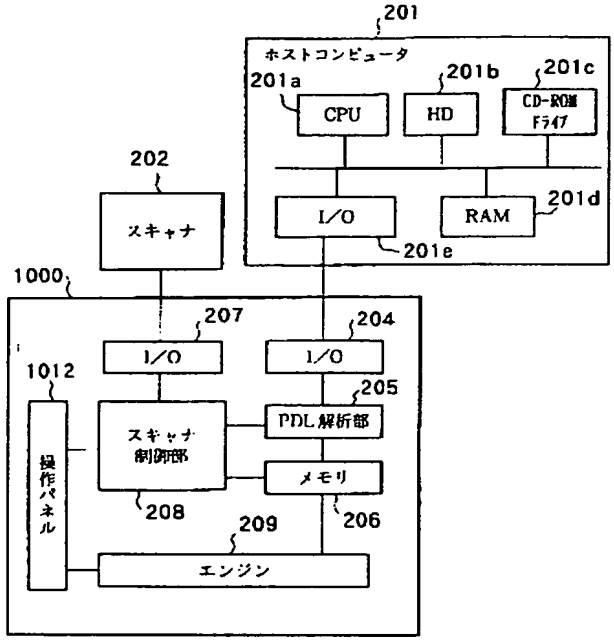
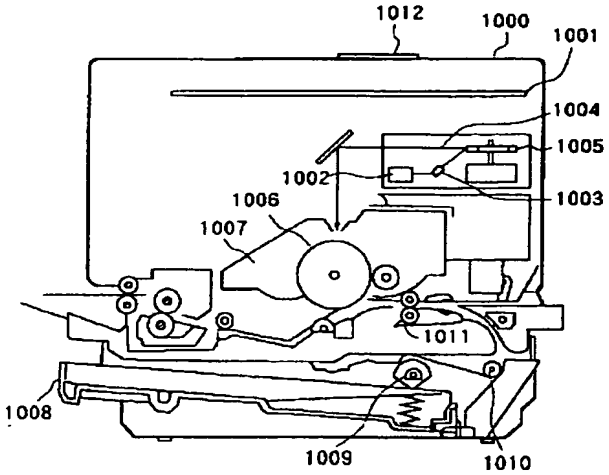
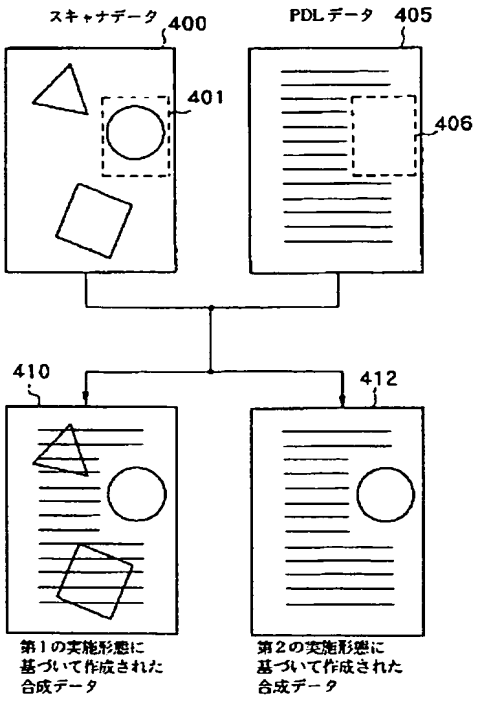
【図1】


201
ホストコンピュータ
201a
CPU
201b
HD
201c
CD-ROM ドライブ
202
スキャナ
I/O
RAM
201d
201e
1000
207
204
I/O
I/O
1012
205
PDL解析部
操作パネル
スキャナ制御部
メモリ
208
206
209
エンジン

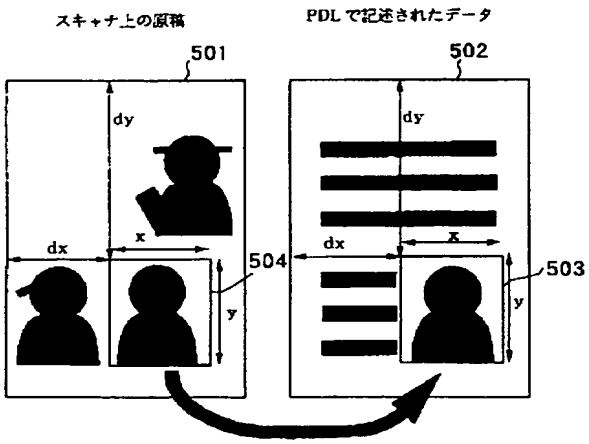
【図2】


1012
1000
1001
1004
1005
1002
1003
1006
1007
1011
1008
1009
1010

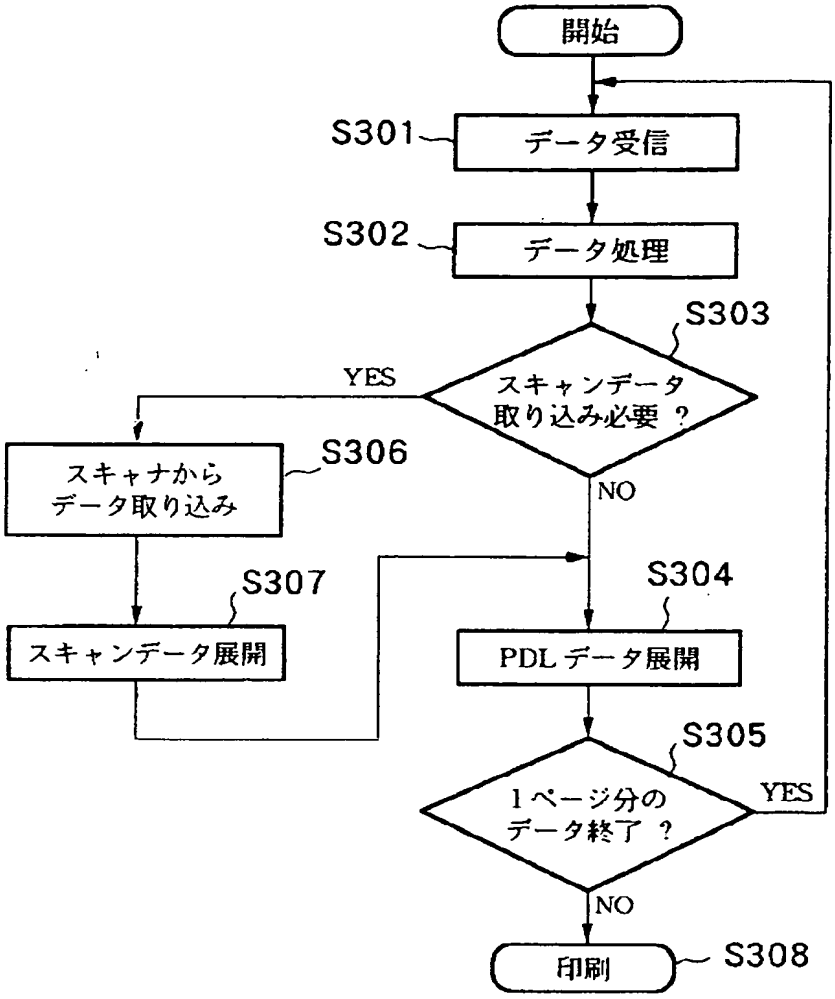
【図4】


スキャナデータ
400
401
PDLデータ
405
406
410
412
第1の実施形態に基づいて作成された合成データ
第2の実施形態に基づいて作成された合成データ

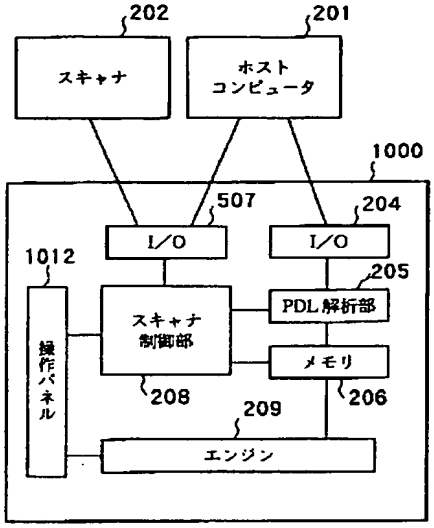
【図6】


スキャナ上の原稿
PDLで記述されたデータ
501
502
dy
dx
x
y
504
503

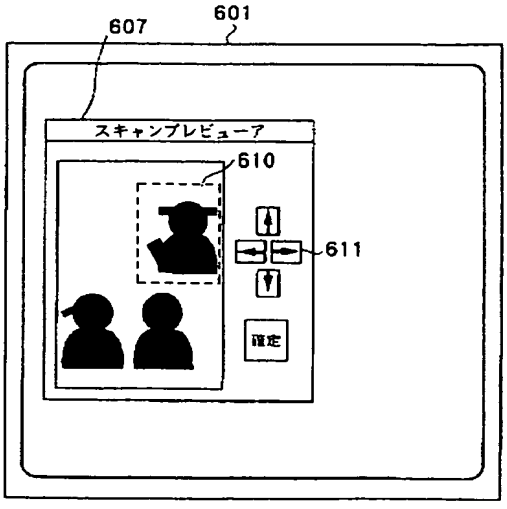
【図3】


開始
S301
データ受信
S302
データ処理
S303
スキャンデータ
取り込み必要 ？
YES
NO
S306
スキャナから
データ取り込み
S307
スキャンデータ展開
S304
PDLデータ展開
S305
1ページ分の
データ終了 ？
YES
NO
印刷
S308

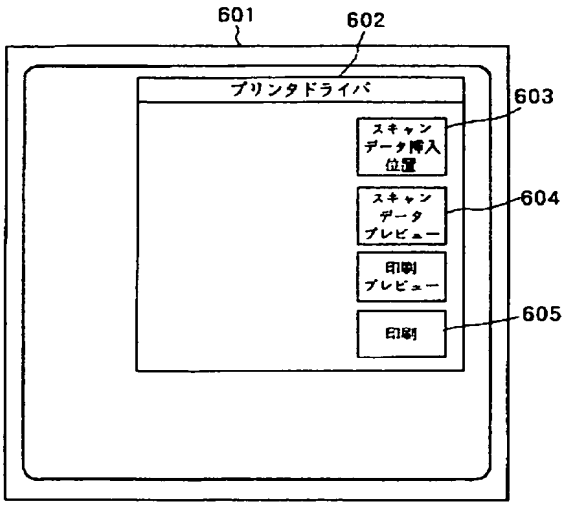
【図7】


202
201
スキャナ
ホスト
コンピュータ
1000
507
204
I/O
I/O
1012
205
操作パネル
スキャナ
制御部
PDL解析部
メモリ
208
209
206
エンジン

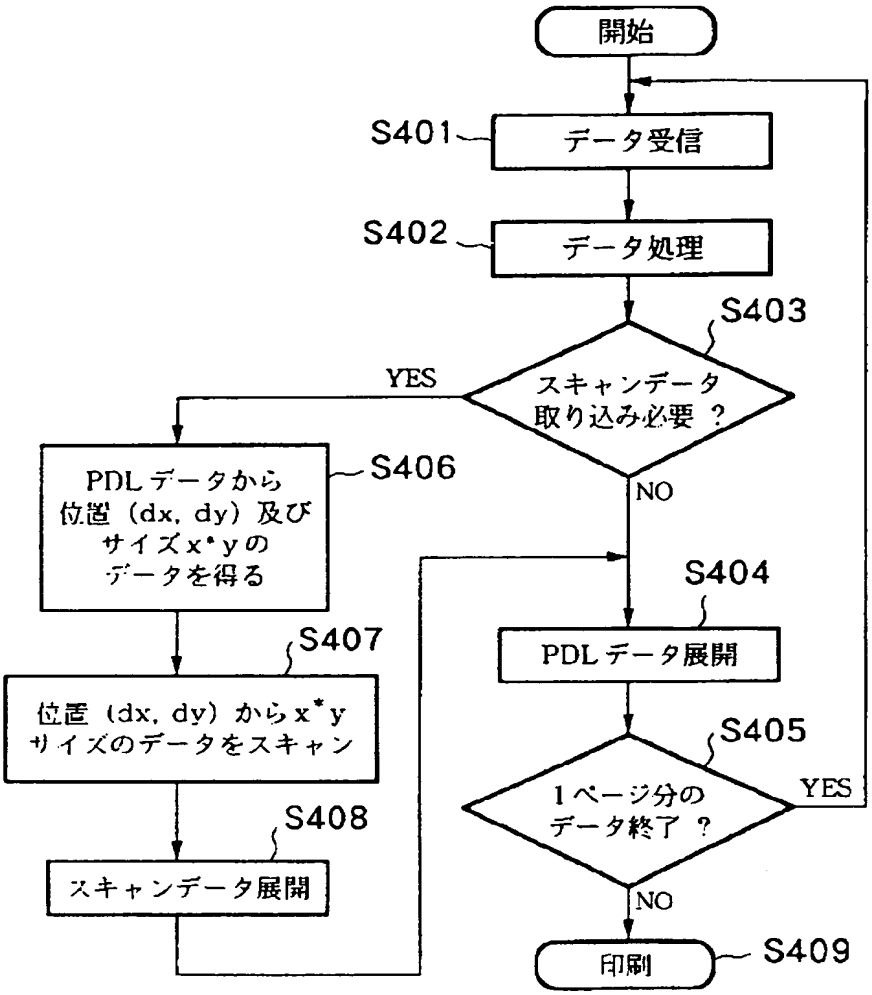
【図9】


607
601
スキャンプレビューア
610
611
確定

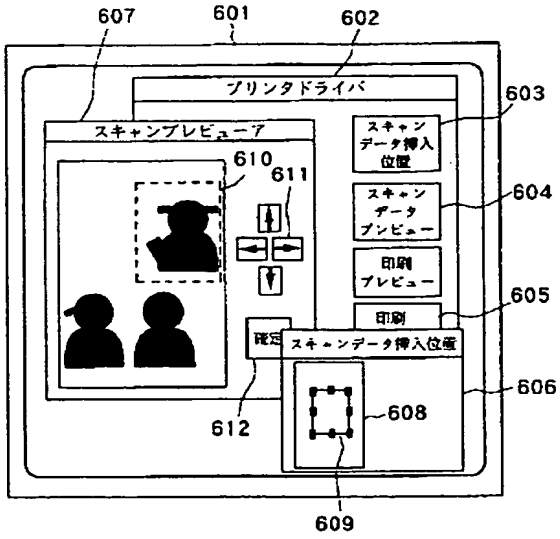
【図11】


601
602
プリンタドライバ
603
スキャン
データ挿入
位置
604
スキャン
データ
プレビュー
印刷
プレビュー
605
印刷

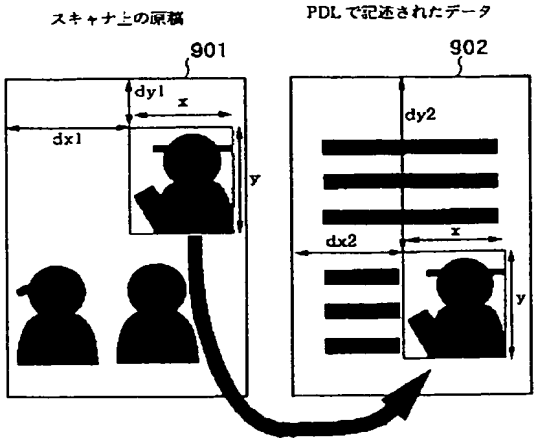
【図5】


開始
S401
データ受信
S402
データ処理
S403
スキャンデータ取り込み必要 ？
YES
NO
S406
PDLデータから位置（dx, dy）及びサイズx*yのデータを得る
S407
位置（dx, dy）からx*yサイズのデータをスキャン
S408
スキャンデータ展開
S404
PDLデータ展開
S405
1ページ分のデータ終了 ？
YES
NO
印刷
S409

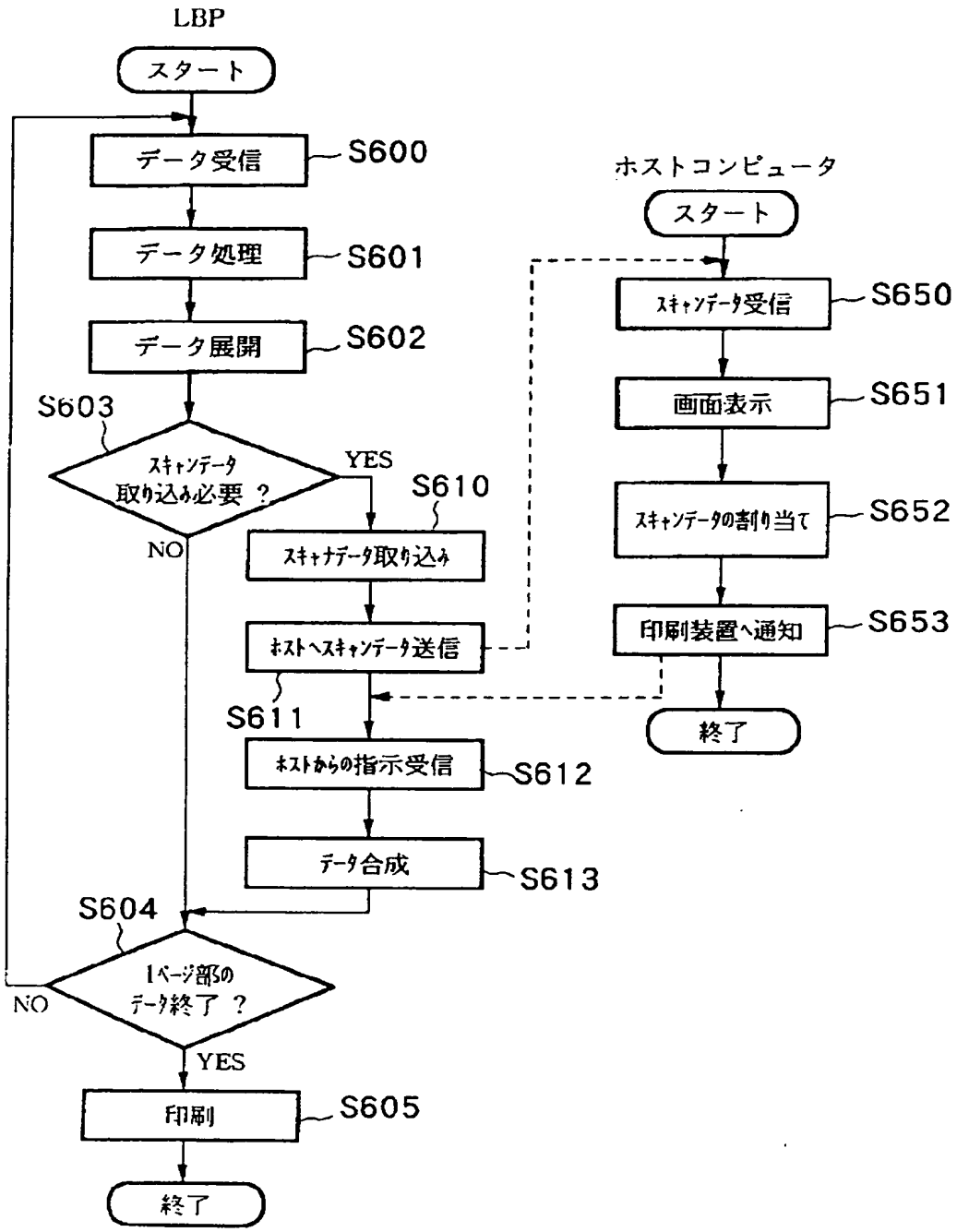
【図12】


607
601
602
プリンタドライバ
603
スキャンプレビューア
スキャンデータ挿入位置
610
611
スキャンデータプレビュー
604
印刷プレビュー
605
印刷
確定
スキャンデータ挿入位置
606
612
608
609

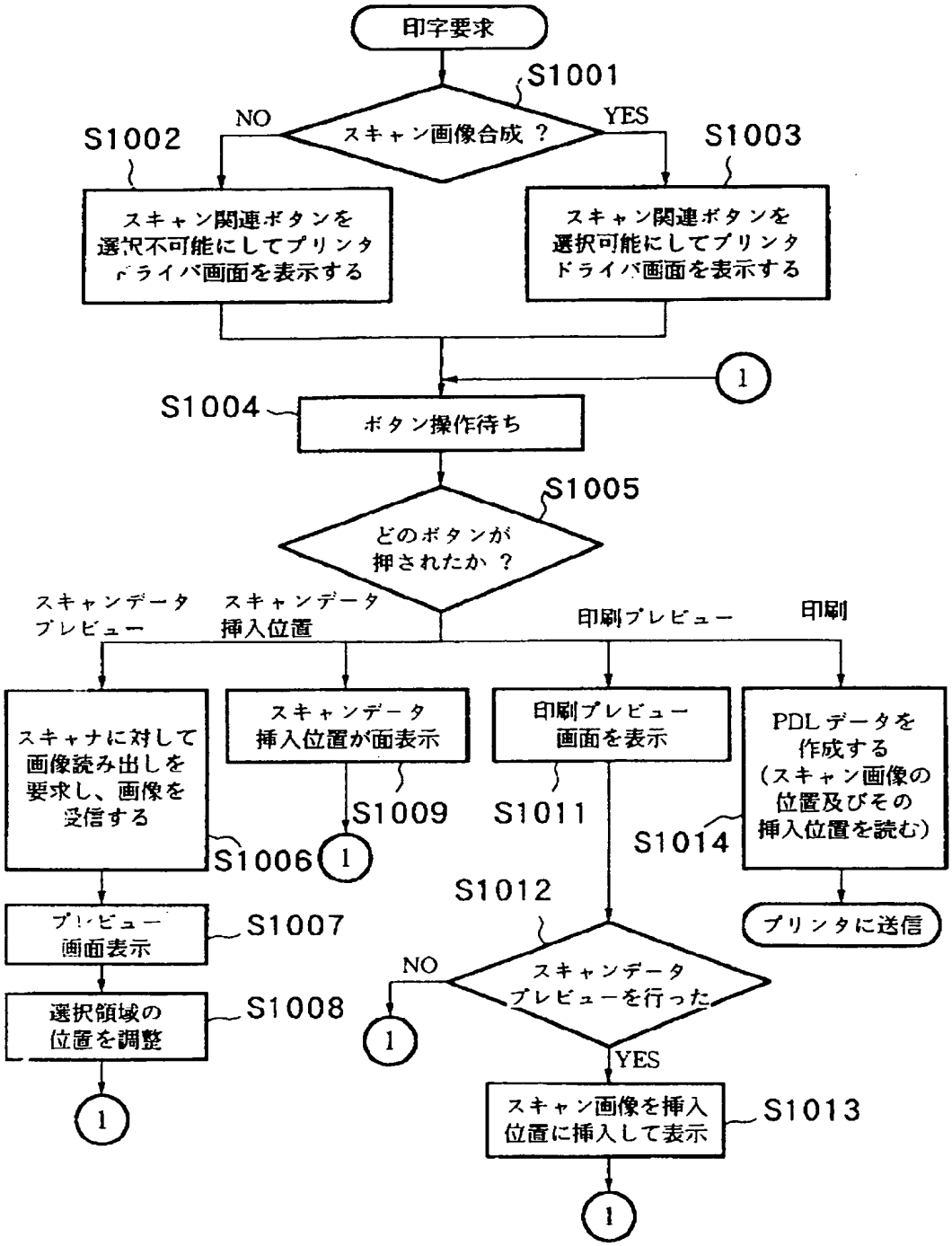
【図15】


スキャナ上の原稿
PDLで記述されたデータ
901
902
dy1
x
dx1
y
dy2
dx2
x
y

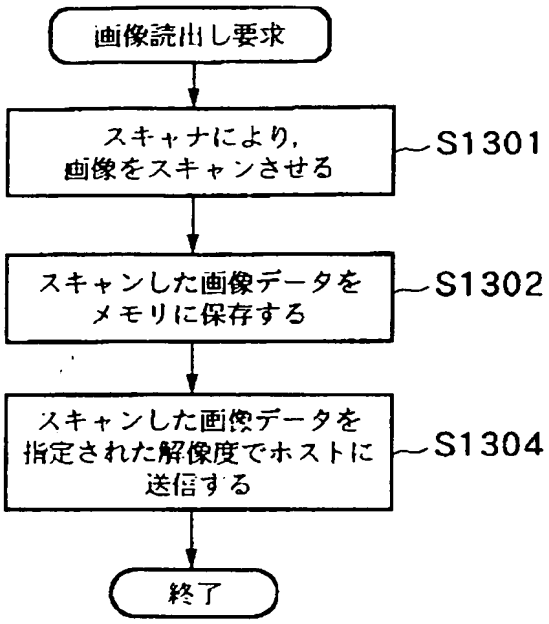
【図8】


LBP
スタート
データ受信
S600
データ処理
S601
データ展開
S602
S603
スキャンデータ
取り込み必要 ？
YES
S610
NO
スキャナデータ取り込み
ホストへスキャンデータ送信
S611
ホストからの指示受信
S612
データ合成
S613
S604
1ページ部の
データ終了 ？
NO
YES
印刷
S605
終了
ホストコンピュータ
スタート
スキャンデータ受信
S650
画面表示
S651
スキャンデータの割り当て
S652
印刷装置へ通知
S653
終了

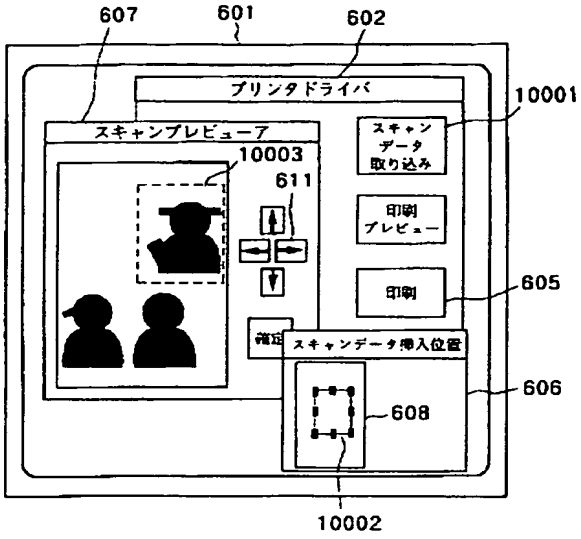
【図１０】


印字要求
S1001
スキャン画像合成 ？
NO
YES
S1002
S1003
スキャン関連ボタンを選択不可能にしてプリンタドライバ画面を表示する
スキャン関連ボタンを選択可能にしてプリンタドライバ画面を表示する
1
S1004
ボタン操作待ち
S1005
どのボタンが押されたか ？
スキャンデータプレビュー
スキャンデータ挿入位置
印刷プレビュー
印刷
スキャナに対して画像読み出しを要求し、画像を受信する
S1006
スキャンデータ挿入位置が面表示
S1009
印刷プレビュー画面を表示
S1011
PDLデータを作成する（スキャン画像の位置及びその挿入位置を読む）
S1014
プリンタに送信
S1012
スキャンデータプレビューを行った
NO
YES
プレビュー画面表示
S1007
選択領域の位置を調整
S1008
スキャン画像を挿入位置に挿入して表示
S1013

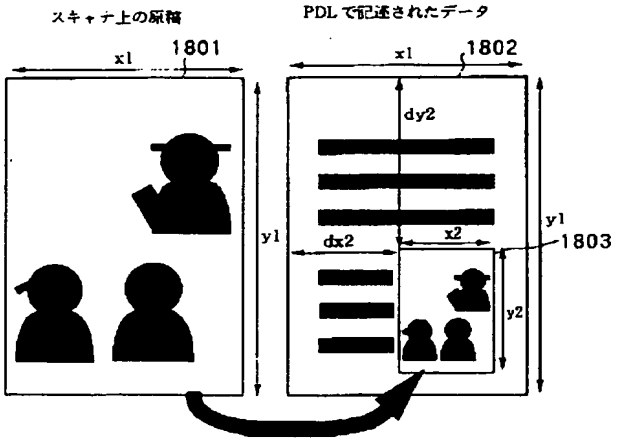
【図１３】



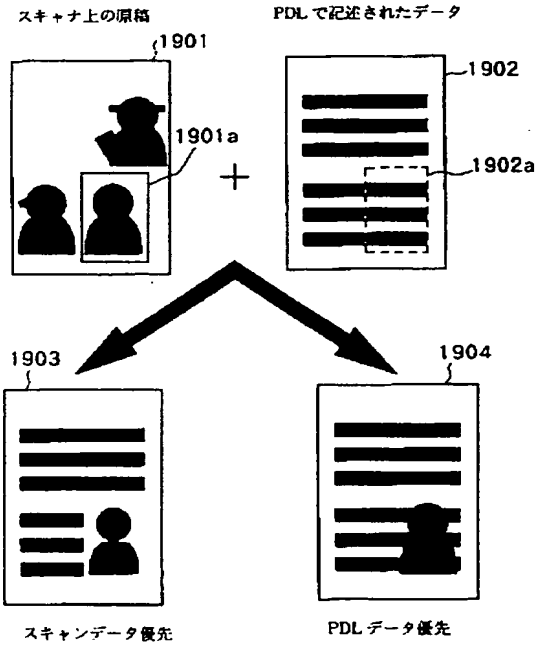
【図１７】



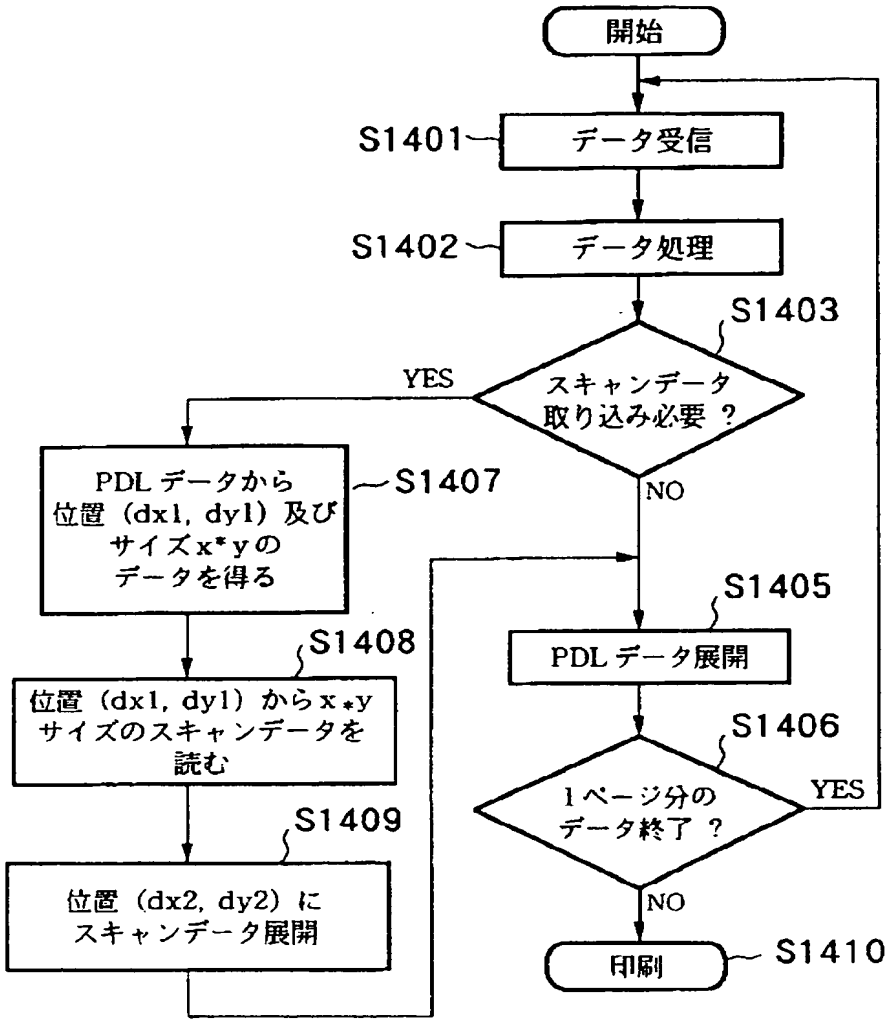
【図１８】



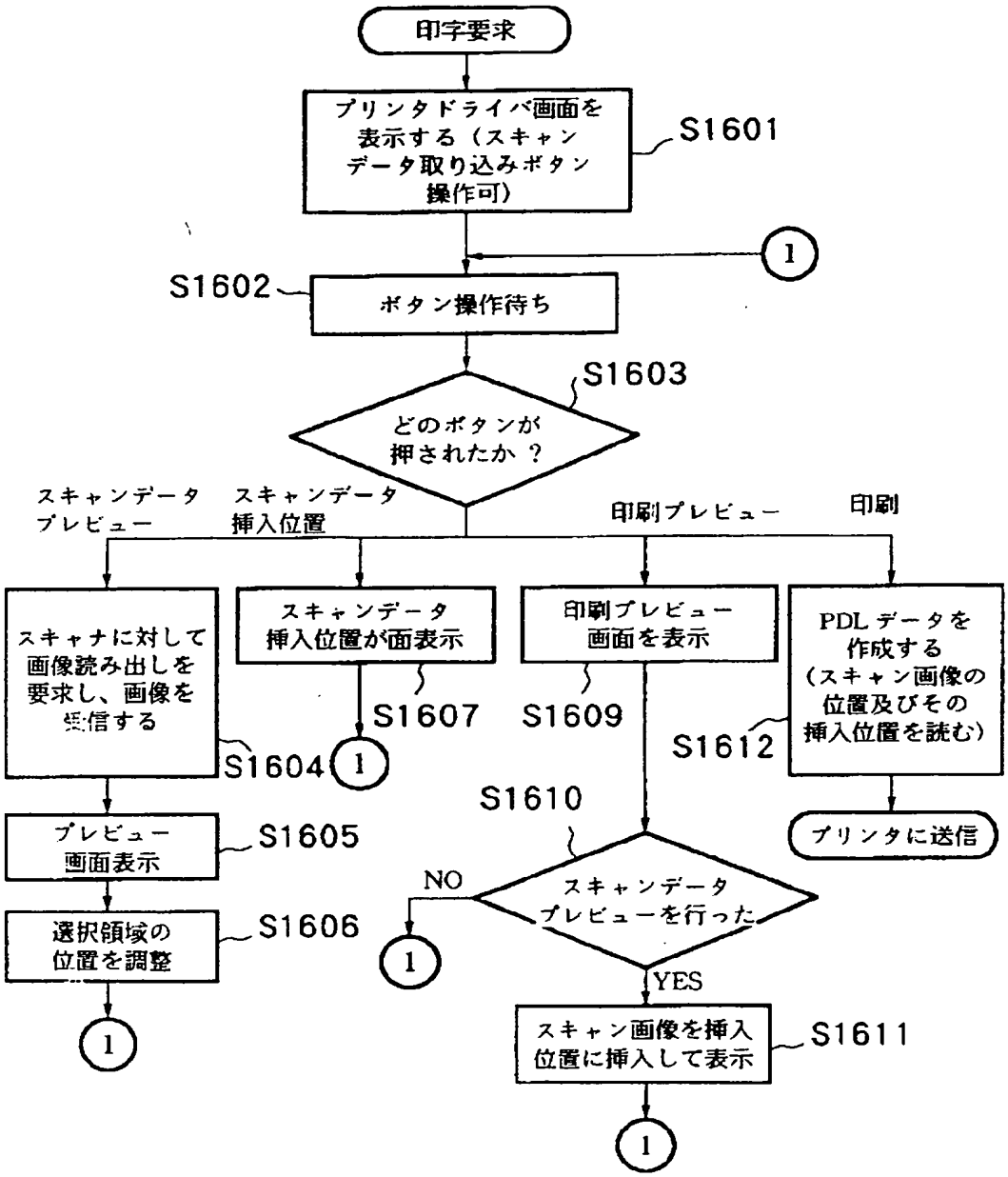
【図１９】



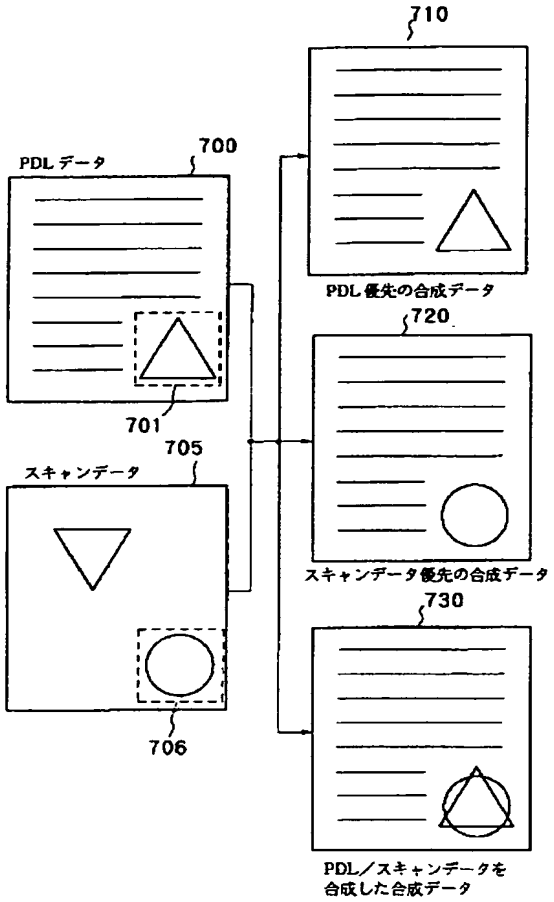
【図14】


開始
S1401
データ受信
S1402
データ処理
S1403
スキャンデータ
取り込み必要 ？
YES
NO
PDL データから
位置（dx1, dy1）及び
サイズx*yの
データを得る
S1407
S1408
位置（dx1, dy1）からx*y
サイズのスキャンデータを
読む
S1409
位置（dx2, dy2）に
スキャンデータ展開
S1405
PDL データ展開
S1406
1ページ分の
データ終了 ？
YES
NO
印刷
S1410

【図16】


印字要求
プリンタドライバ画面を表示する（スキャンデータ取り込みボタン操作可）
S1601
1
S1602
ボタン操作待ち
S1603
どのボタンが押されたか？
スキャンデータプレビュー
スキャンデータ挿入位置
印刷プレビュー
印刷
スキャナに対して画像読み出しを要求し、画像を受信する
S1604
スキャンデータ挿入位置が面表示
S1607
印刷プレビュー画面を表示
S1609
PDLデータを作成する（スキャン画像の位置及びその挿入位置を読む）
S1612
プリンタに送信
プレビュー画面表示
S1605
選択領域の位置を調整
S1606
S1610
NO
スキャンデータプレビューを行った
YES
スキャン画像を挿入位置に挿入して表示
S1611

【図20】



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